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Profile: School, College, and University Landscape Management

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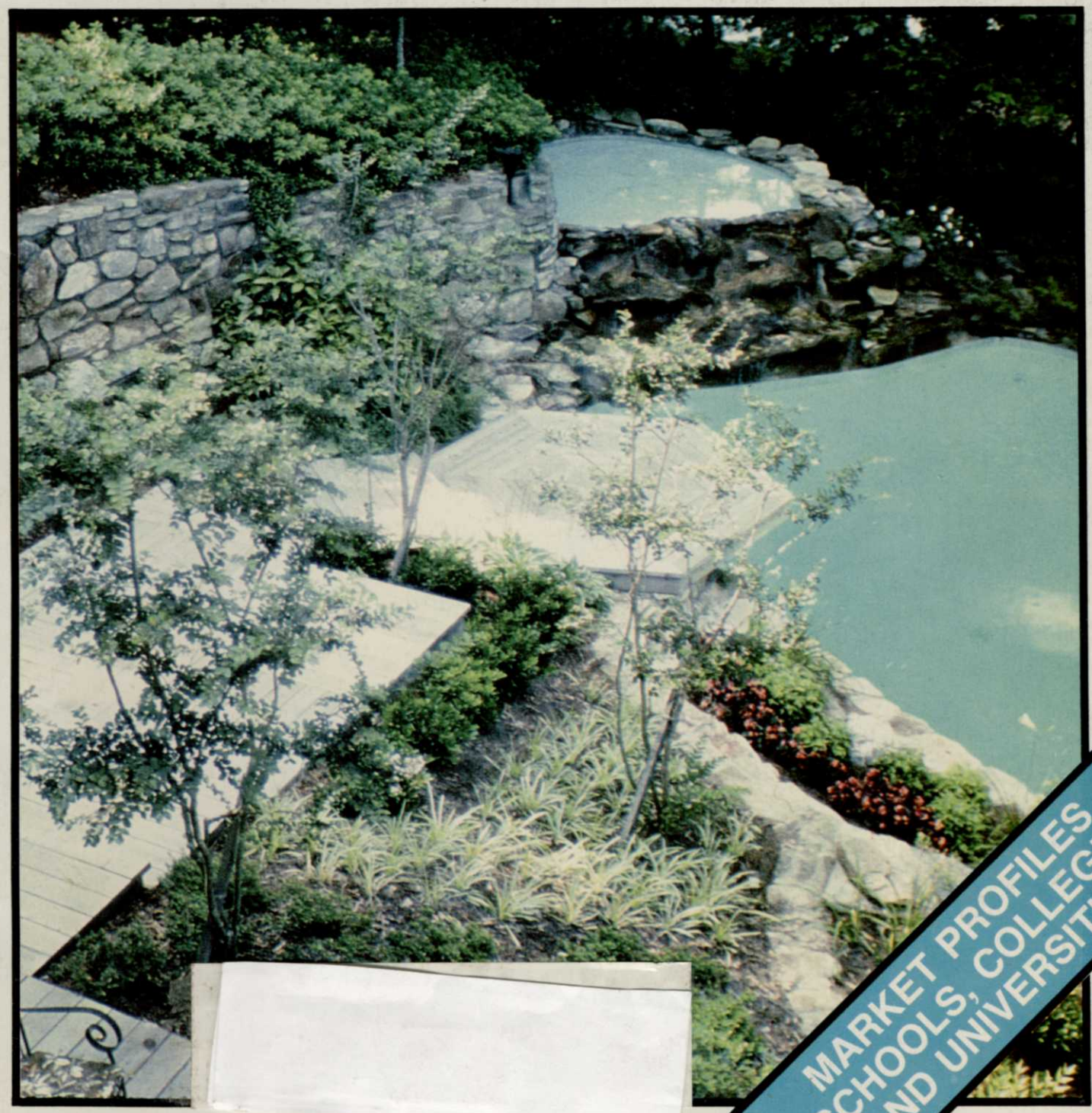

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WT&T

Keys to landscape renovation by Jim Gibbs, president of Greene Brothers Landscape Co. Inc., Smyrna, GA.

AUGUST 1982/VOL. 21, NO. 8

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Cal Poly, Pomona's landscape, page 42.

Managing Harvard's Common, page 34.

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Increase Renovation Jobs, Sell With Photography

A regular winner of landscape awards, Greene Brothers Landscape Co., gives five examples of renovation jobs he performed. The same jobs were featured in the *Atlanta Journal* reaping more work for the company.

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Landscape Management Profile: Schools, Colleges and Universities

The first in a new series of descriptive profiles of the Green Industry. New research findings and four company profiles lend insight into this stable landscape market.

First, in-depth profile of schools, page 29.

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Guide to Transplanting: Six Factors to Consider

Timing, species, pre-treatment, antitranspirants and site all must be considered when transplanting. Dormancy is not the only guide as some species transplant best in the summer.

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Winter Overseeding: Old Idea Grows Up

Overseeding cool-season turfgrasses into bermudagrass greens started in the 1920's. Modern mixtures of turfgrasses protect warm-season species in the 80's.

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WT&T

OUTLOOK

By Bruce F. Shank, Executive Editor

Getting Even With the Big Guys

Twenty percent of the companies perform 80 percent of the business. This is a common truth for many service industries, including landscape contracting and lawn care.

If you are in the group doing 20 percent of the business, you may envy some of the advantages of being big; such as quantity discounts, price breaks on insurance, more sophisticated marketing, and first pick of graduates. The big guys have the edge on accounting, legal and computer services too.

On the other hand, the ability to change course rapidly, is not only a favorable characteristic of being smaller, but it has allowed the industry to adjust to downturns in certain markets like construction. You can look in the mirror and have a board meeting, while larger companies may take months to adjust to market conditions.

Some of the advantages of being large are available to association members. Insurance group rates, business and marketing aids, and training are currently available through associations. You have the advantages of being smaller as well as some of the advantages of the big guys.

Now we hear discussion of buyer cooperatives. The concept sounds tempting, but much more information is needed. Agricultural cooperatives have served farmers well for decades. Some have also gone bankrupt in the last three years as farm prices dipped precariously.

Rural cooperatives grow to become tools of the medium-sized farmer, not the small farmer. They become politically complicated organizations carrying large lines of credit. As a stockholder, the farmer faces some of the same boardroom slow downs of large corporations. Members of cooperatives must coordinate their preferences in product lines. Some of the freedom supposedly gained by organizing is lost in the necessity for compromises in product selection.

If landscape businesses use a cooperative to agree on pricing, large companies can have them in court for collusion. Associations also have to be careful not to encourage discussion of pricing among members. Cooperatives would be approaching price fixing by controlling the cost of supplies. Remember the legal edge of the large companies.

Distributors protect companies from price fixing. They also provide support services, especially for equipment repair. Many distributors formulate regional chemical mixes and offer them at a reduced price. If cooperatives take business away from regional suppliers, they must also provide all the support services of distributors. A simple solution to getting even becomes complex and overhead drives cooperative costs up to the same level as before.

My feeling is the market is starting to stratify. The medium-sized firm, not the small firm, is organizing against the big firms. The result will be a three-tiered market with the small company, the distributor, and the associations getting the short end of the stick. There is reason for hesitation and a need to examine closely the real advantages of "getting even with the big guys." Freedom of being smaller, safety in diversity, and the health of associations and distributors are too valuable to discard to get even. **WTT**

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GREEN INDUSTRY NEWS

PEST CONTROL

Oregon's fast attack on Gypsy Moth works

Salem, Oregon has beaten its gypsy moth problem according to the data that has been collected at this point. As reported in the July issue of *Weeds Trees & Turf*, the Oregon Department of Agriculture sprayed Sevin over a 5000 acre area in May, to eradicate an infestation that had been detected in 1981.

Since that first application, which had been delayed by environmental opposition, a second application was made and met with a minimum of public protest. Although the results will not be confirmed until the trapping phase is completed in early September, state officials feel confident that the second treatment completed the job.

The California county of Santa Barbara has also been dealing with gypsy moths since 41 live moths were trapped in 1981. According to the assistant agricultural commissioner, Ron Gilman, the county was sure they had a breeding population when such a large number of adults were found after three previous years during which only two or three "hitchhikers" had been caught each year.

The county began designing an environmental impact report as soon as the gypsy moth problem was found, but couldn't put it into action until eggmasses were located, pinpointing the area to be treated. The commission encouraged the help of the community in locating the eggmasses, they visited schools to teach children to recognize the stages of the moth's development and even trained dogs to detect the scent.

When the moths were located in the town of Montecito in January of this year, the county Agricultural Commission began a five pronged attack beginning with ground applications of Sevin over 300 acres. Bacillus thuriengesis was then sprayed from helicopters. The spray program has been followed by the use of 14,000 traps to attract male moths. Enlisting community help, the Commission has rounded out its effort with a public education program and a voluntary quarantine.

COMING SOON

Florida Nursery and Allied Trades Show, Sept. 24-26, Tampa FL. Cosponsored by the Florida Nurserymen and Growers Association, the Florida Society of Landscape Architects, the show is attended by all segments of the industry, including landscape contractors, wholesale growers of woody and foliage ornamentals, allied suppliers and nursery and garden center retailers. Contact Julie Garmendia, FNGA, P.O. Box 16796, Temple Terrace, FL 33687, 813/985-8511.

California Association of Nurserymen Convention, Sept. 21-23 Sacramento, CA. AAN president Kent Lamglinais and executive vice president Bob Lederer will be speaking on the national progress of the nursery industry. Featured speaker Maxine McIntire will teach how to use and recognize body language and non-verbal communication as a sales and business tool. Contact Elaine Thompson, CAN, 1419 21st Street, Sacramento, CA 916/448-2881.

Contracting-out bill looks positive

The Associated Landscape Contractors of America in conjunction with the National Construction Industry Council is working to pass a law that would require Federal Government facilities to contract out for all goods and services that can be obtained more efficiently or inexpensively from private industry. The Economy in Government Act of 1982 would make it illegal for government agencies to compete with any sector of the open market, including the green industry.

The bill stems from a government policy that has been in effect since 1966 that sets guidelines for all out-of-house government purchases. According to Tony Poncitella of the NCIC, "the policy, Circular A-76, was not doing the job, we need statutory language to require them to go over what services are being performed in-house and close them down if the needs can be met by outside operations."

The language of the legislation, in its present form, also affects state and municipal government by putting the same restraints on any state or local government receiving Federal aid.

If the law is passed, it will include a schedule for the elimination of in-house operations and a set of unified procurement guidelines.

Senator John East

Sponsored by senator John East (R-NC), hearings have already been held by the Senate Governmental Affairs Committee, Subcommittee on Federal Expenditure. Due to elections and other conflicts, no further action is expected in the Senate this year.

The NCIC expects to have sponsors who will introduce similar legislation to the House of Representatives by fall. At the earliest, however, the bill is not expected to become law until 1984.

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Glade	0.0
Nugget	0.0
Mystic	0.0
Touchdown	0.0
Sydsport	0.5
Plush	2.0
Baron	3.0
Cheri	3.5
Victa	3.5
Geronimo	4.0
Majestic	5.0
Bonnieblue	6.0
Adelphi	6.5
Vantage	6.5
Rugby	7.0
Parade	7.0
Pennstar	7.0
Fylking	7.0
Merion	8.0
Windsor	9.0

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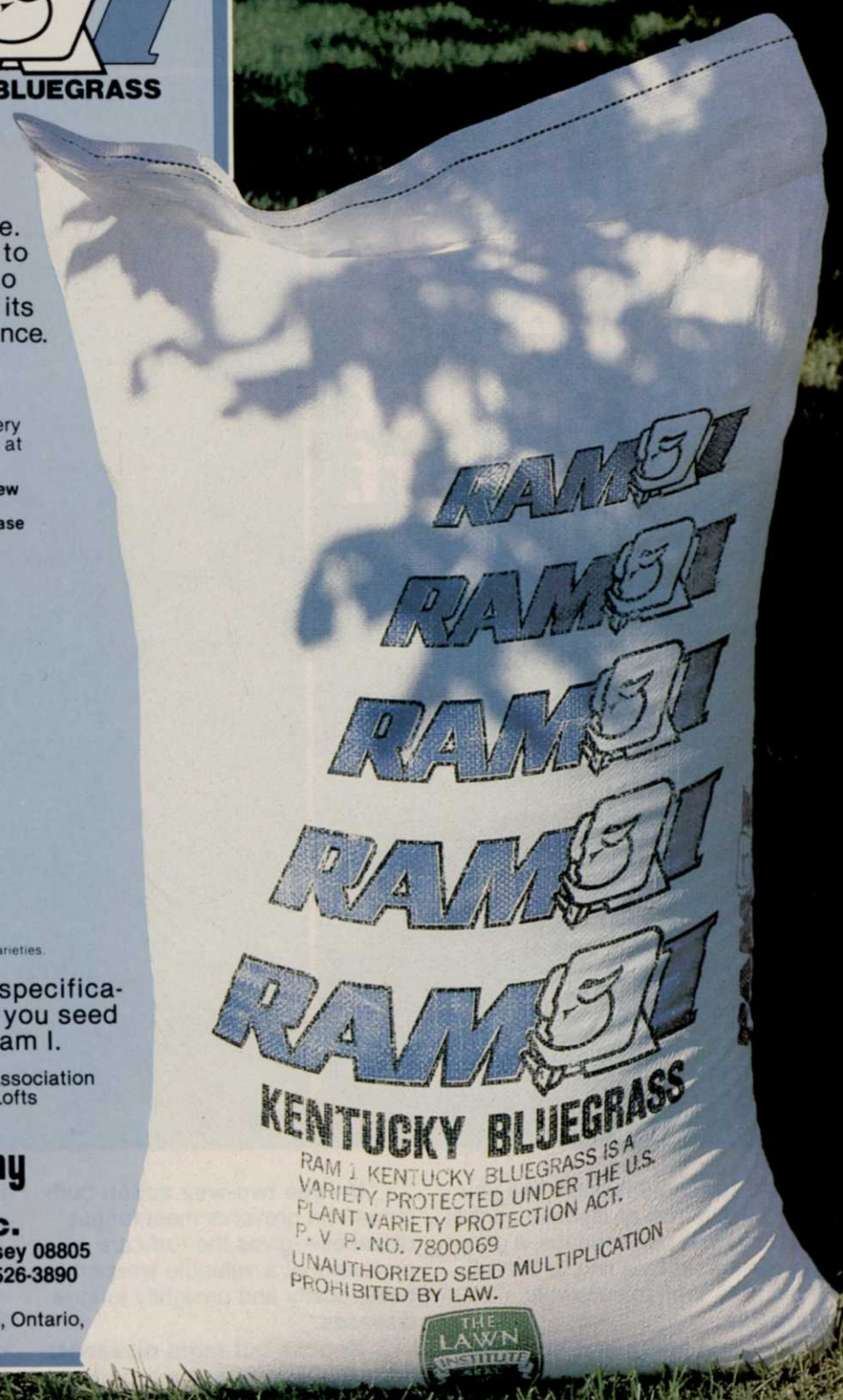

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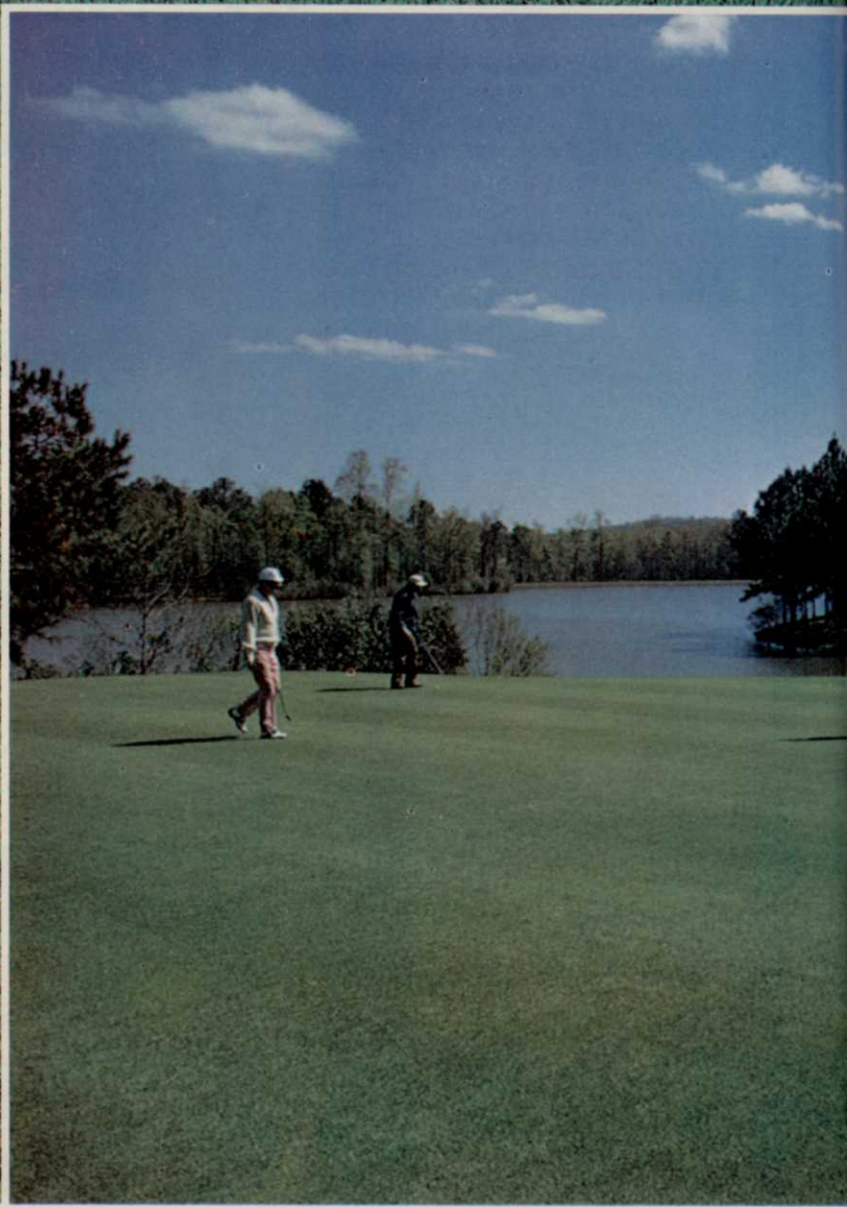

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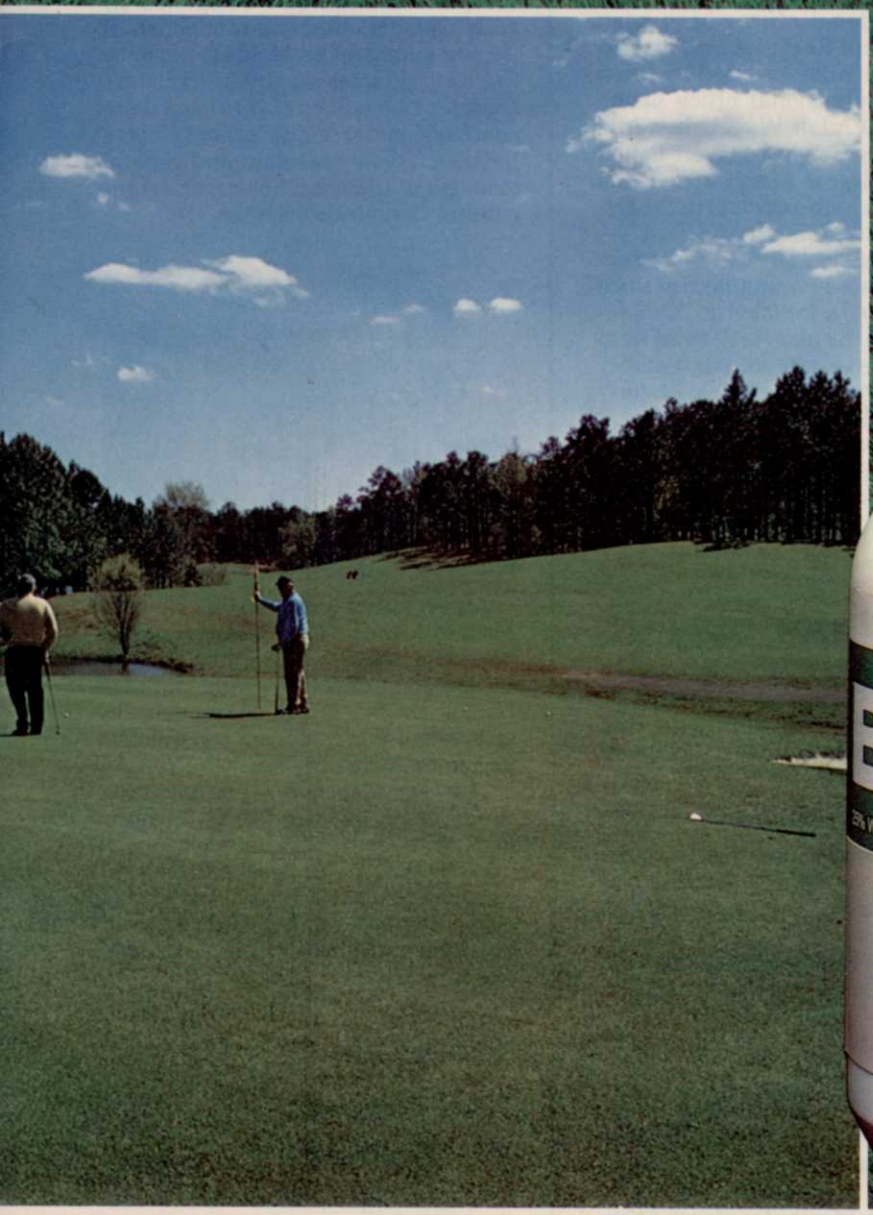

Fast-acting: Systemic activity provides rapid, uniform protection of the grass plant against disease organisms.

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GOLF UPDATE

Snow named USGA Director

James Snow has been named Director of the Northeastern Region of the USGA Green Section. Formerly Senior Agronomist of the Northeastern Region, Snow joined the Green Section in 1976. He holds a master's degree in ornamental horticulture from Cornell University. He replaces Carl Schwartzkopf, who resigned.

In other Green Section news, two subregional offices have been opened. A subregional office of the Northeastern Region is now located at 236 Goldthwaite Road, Whitinsville, MA. It will be staffed by Brian Silva, Northeastern Region Agronomist. A subregional office of the Southeastern Region has been opened at 5579 Adair Way, Lakeworth, FL. Newly-appointed Southeastern Region Agronomist Steven Batten will man this office. Batten holds a master's degree in agronomy from Oklahoma State University and is a former research associate in the Department of Agronomy at Texas A&M University.

The USGA has increased its fee for Green Section Turf Advisory Service to $500 from $350. The increase represents a 10% annual rise since 1978 and will include all expenses incidental to the initial visit. "Our expenses for the Turf Advisory Service far exceed the income derived from the fees, but we want to maintain this valuable service for our member clubs and courses," said USGA Senior Executive Director Harry Easterly Jr. "This increase will help us keep up with inflationary pressures."

Additionally, the USGA Executive Committee has decided to keep the association located in Far Hills, NJ. The association is currently leasing three buildings in addition to Golf House. USGA will turn Golf House into a golf museum and an office building will be built on the grounds to house the association.

Harsh weather slows winter play

The length and severity of "Winter 1982" led to a 2.7% decrease in rounds of golf played during the first quarter of the year, according to the National Golf Foundation's survey. The same period in 1981 had a 16% increase in rounds played due to great conditions and early openings. However, during the first three months of 1982 24% (3200) of the 13,000 courses across the country were closed.

Golf courses in the Sunbelt are still feeling the effects of a sluggish economy. Even in areas that reported increases in rounds played, the general impression was that the tourist trade was down. Activity was mixed in the three major golf states. Florida was up 3.3%, California up 3.9%, but Texas rounds were down 9.1%.

By types of facility, play at municipal courses was up 3.8%; while both private clubs and daily fee operations were down 6.0% and 0.7% respectively.

GCSAA sets new Referral policy

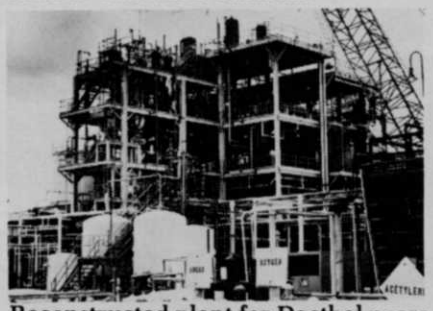
The Golf Course Superintendents Association of America has instituted a new fee schedule for its Employment Referral Service. Clubs will be charged $50 for listing openings through ERS, in effect, picking up the major part of the expense of running the service. Members will pay $10 to receive ERS listings for a six-month period. Previous policy allowed members to receive the service for four months at no charge. The fees are expected to cover the costs of sending ERS listings to 500 members every week.

In other GCSAA news, the association will be establishing a mini-GCSAA museum at the Industry Hills Golf Course, City of Industry, CA. Industry Hills will display five small pieces of historical equipment or documents. GCSAA is planning a series of mini-museums throughout the United States.

CHEMICAL

Dacthal goes on the market for '83

Dacthal should be available for the 1983 growing season, if manufacturer Diamond Shamrock meets its present construction schedules. The company expects to have the reconstruction of the plant and systems completed by early October, enabling production of the pre-emergent herbicide to begin by the last quarter of 1982. "We are confident we will be able to meet these construction deadlines," stated George Lawrence, vice president and general manager of Diamond Shamrock's Agricultural Chemicals business.



Reconstructed plant for Dacthal nears production stage.

An explosion damaging the Houston plant in July of 1981 halted the production of the widely used herbicide. Plans for the plant now being built were approved by the board of directors by October of that year and construction began immediately.

The reconstruction of the plant has been the work of two firms. Construction engineering and management of the Dacthal plant was handled by Fruco engineers of St. Louis, while the actual construction has been done by the Houston firm of Voss International.

NURSERY

AAN protests Immigration bill

In a statement to the Senate Judicial Committee, the American Association of Nurserymen has strongly objected to several parts of the Immigration Reform and Control Act of 1982 (S-2222). Virtually all of the 3200 AAN member firms are small businesses that employ a significant number of seasonal workers.

As the legislation now stands, it would require small businessmen to be able to prove that employees had pro-

Continued on page 16

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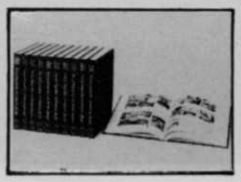

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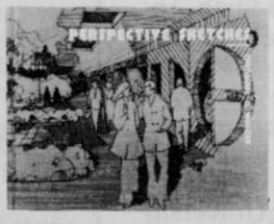

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LANDSCAPE UPDATE

Interior Show set for Scottsdale, AZ

The Associated Landscape Contractors of America's Sixth Annual Interior Landscape Conference will be held at the Camelback Inn in Scottsdale, AZ, September 8-11, 1982. The theme for this year's conference is "Foundation for the Future" — "The Plantscape Destiny". The program will stress operating a plantscape business using good business practices and updates on the most recent advances in technical knowledge.

The keynote speaker is Carl Hodges, director of the University of Arizona's Environmental Research Laboratory. Hodges will speak on the future of high density agriculture in controlled environments. Professional personnel consultant Jesse Tuffman will speak on personnel turnover and professional sales techniques geared to the industry. Other highlights include sessions on image enhancement, a comparison study of management styles, a "How to" workshop/round table on maintenance, bidding, leasing, short term rental and installation, and a program on watering devices and lighting.

The meeting will be held concurrently with the Southwest Nursery and Landscape Trade Show set for September 9-11 in Phoenix. Transportation will be provided to the Civic Plaza Convention Center from the Camelback Inn.

In other interior landscaping news, ALCA has produced two audiovisual educational programs. "Introduction to Plant Maintenance" is a 32-minute color video tape to help train maintenance technicians. It is an informal yet informative overview of the interior technician's responsibilities. "Plants Indoors" is a slide/sound program that serves as an introduction to the entire process of interior landscaping. Highlites include a short review of the state of the art, general information on maintenance and selection of interior plants, and the aesthetic, functional and emotional roles of plants in interior spaces.

"Introduction to Plant Maintenance" may be purchased from ALCA for $100 (member), $125 (non-member). "Plants Indoors" may be purchased/rented from ALCA for $75/20 (member), $110/30 (non-member).

Landscape architecture seminars planned for six cities

"Energy-Conscious Siting" is one of the four seminars being planned by the American Society of Landscape Architects. Three other seminars, "Computer-aided Design Practice", "Tomorrow's Mineral Landscape" and "Economy in Graphics II" are planned for six U.S. locations in August and September.

"Energy-Conscious Siting" will review fundamental concerns of site planning for energy conservation. Specifically, strategies using current research developments in optimum site orientations will be discussed, including topographic, vegetation, and structural configuration, heat loss/gain calculation methods, and macro/micro climate data for all regions of North America.

Seminars in Series I (Computer and Mineral) will be held August 16-21 in Washington, DC; Chicago, IL; and San Francisco, CA. Series II seminars (Graphics and Energy Siting) will be held September 13-18 in New York, NY; Dallas, TX; and Los Angeles, CA. Contact ASLA for further details (202) 466-7730.

NEWS *from page 10*

vided verification of citizenship in the form of a social security card, or birth certificate plus a driver's license or other document acceptible to the Attorney General.

If the legislation were passed in its present state, an employer who hired an applicant without all of the proper identification would be subject to a $500 fine. Simply failing to maintain records of this identification for five years after the date of employment would make the employer liable for a $500 fine. Knowingly hiring an illegal alien could cost a small businessman up to $2000.

The AAN has issued a statement urging that the "responsibility for enforcement of the nation's immigration laws be left where it belongs — to the Federal Government." The Association does not feel that enforcement if the job of the small businessman and encourages green industry members to write to their representatives and press for the removal of these clauses of the bill.

EQUIPMENT

Krigger & Co. expands Jacobsen Territory

Krigger and Company has added a branch in Columbus, OH, expanding its sales territory for Jacobsen turf equipment into central Ohio. Located at 852 Marion Road, the branch is managed by Peter Miller. The Pittsburgh-based distributor markets the Jacobsen line as well as other turf care supplies, in western Pennsylvania, northeastern Ohio, and northern West Virginia.

ASSOCIATIONS

Independent lawn care businessmen organize

A seminar last January was the starting point for the new Independent Lawncare Businessmen's Association (ILBA) says former Ohio State University marketing instructor Rudd McGary. "In order to compete with large companies some mechanism must be found which will give the owner/operator type of lawn care company the same abilities to purchase various services and goods at prices available to those larger companies," McGary reasons.

ILBA will offer five business aids for the independent; training, advertising assistance, business forms, insurance, and products. McGary also said ILBA will be looking for products that could

Continued on page 18

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GOVERNMENT UPDATE

BY WILLIAM HOFFMAN

Reclamation regs imperiled

James Watt, Secretary of the Interior, was particularly upset when the Supreme Court upheld the Surface Mining Control and Reclamation Act which gave the Federal Government control over strip mining of coal. Now, almost a year later, the Interior Department of the Interior is weakening the Office of Surface Mining that is responsible for managing the Act.

Stringent regulations are being rewritten, including the construction of sedimentation ponds, impoundment of overburden and spoil, and the reclamation of the strip mining with topsoil and grass plantings.

Laws in the 24 coal states must now only be as "effective" and not as "stringent" as the Federal law. This change will result in an earlier transfer of strip mining enforcement to state authorities. Environmental groups fear that these authorities, though backed by tough state laws, will face political pressure from coal mining interests and the old abuses will return.

In the meantime, the Office of Surface Mining size is decreasing with the shift of responsibility to the state and the Federal budget cutting. If states abuse their authority, the Federal Government might not be able to take back the enforcement responsibilities. The people who live in the mining areas will be the ones affected the most.

Windmills: to fund or not to fund

The U.S. Department of Energy (DOE) issued final rules for seeking Federal money for purchasing and installing windmills (wind energy systems) with more than 100 kilowatt-rated capacity. Then in a surprise action, DOE announced opposition to funding any requests because the market conditions and tax credits provide sufficient incentives for the private sector to finance their own windmills. However, appropriate legislation must be passed to ensure that Federal money not be spent.

Friends of Earth turned down

Both the Environmental Protection Agency (EPA) and the Federal Aviation Administration (FAA) denied the Friends of the Earth petition requesting changes in the federal government's management of aerial application of pesticides. EPA received over 3000 letters in response to the May, 1979 petition, which called for written permission to spray pesticides within 1000 feet of a person or another person's property, levying penalty points against a pilot's certification for incidences of spray drift, label instructions for integrated pest management techniques, creation of a citizen enforcement and monitoring system, and various other positions.

EPA in denying the request stated that because of the differences across the country in land use, weather, crops grown and local opinion regarding pesticide spraying, decisions concerning regulation of spray drift should be made by state governments and not at the federal level.

NEWS *from page 16*

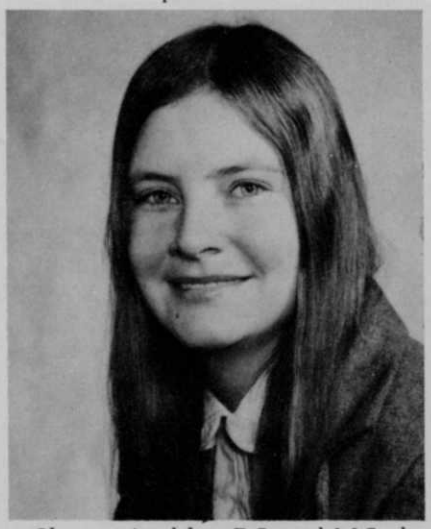
be sold directly to the consumer through members, such as grass seed and various gardening tools.

John Linkhart, former vice president of operations for Perf-A-Lawn, and McGary formed the group. McGary told *Weeds, Trees & Turf* that unlike other associations in the industry, ILBA will not be non-profit.

SEED

Jacklin appoints Brilman to research

Jacklin Seed Co., Post Falls, ID, has named Dr. Leah Brilman research director. According to Duane Jacklin, general manager, Brilman's research and publications in plant genetics have gained her recognition among agronomists and plant geneticists in both the academic and private business sectors.



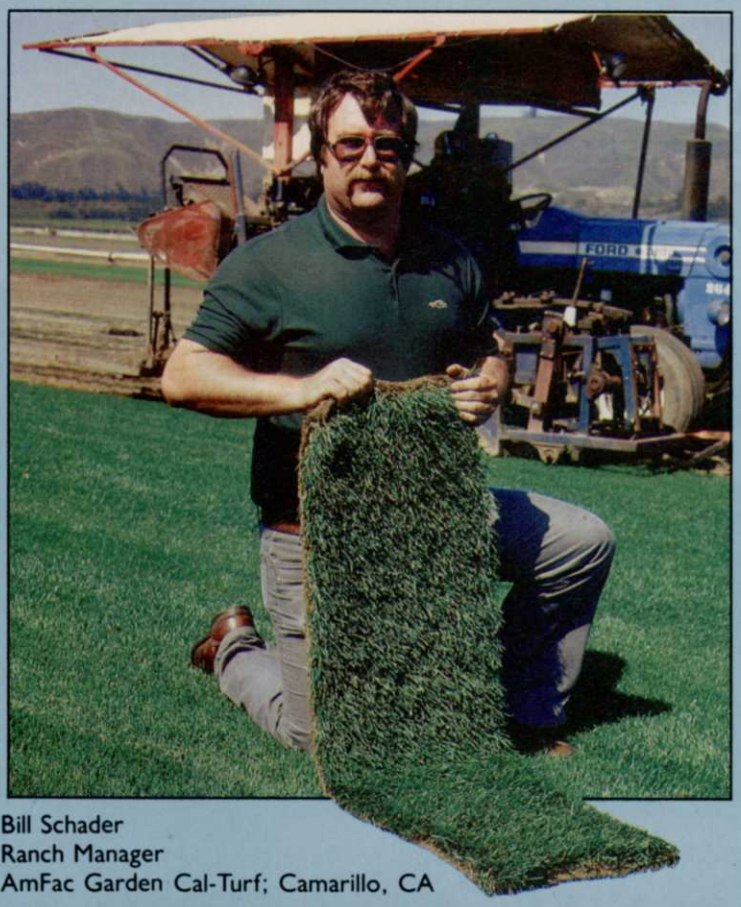
She received her B.S. and M.S. degrees from California State College in Bakersfield and a Ph.D in agronomy and plant genetics from the University of Arizona in Tucson. Before joining Jacklin, she was assistant professor and plant breeder at the University of Arizona.

PESTICIDES

Scientists follow pesticides in soil

Scientists at the University of Illinois have developed a technique using microecosystems to study the behavior of pesticides in the environment. The new method, refined by graduate assistant Bruce Banham, enables scientists to tag the pesticides with radioactive materials to determine the persistance of the pesticides in various soil types,

Continued on page 64



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These test plots at Camarillo, California, proved Columbia Kentucky Bluegrass was best suited to this area. Fusarium and rust damaged Baron, Victa, Glade, Park and Touchdown while Columbia rated second only to the experimental CHB-11A. As a result, Columbia was chosen as a vital part of the mixtures used in southern California sod.

Rankings from turf trials throughout the United States:

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Adelphi	1	36	2	16	4	4
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Touchdown	3	18	18	7	14	46
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Greene Bros. Landscape Co. is a design build company. We employ eight designers who meet our clients on-site to discuss their landscape needs. In the first on-site meeting the client gets a rough idea of the cost of the work. We try to determine the budget and satisfy the customers needs without exceeding it. Many people want a beautiful landscape but have no idea what it can cost. We try to determine the budget before beginning so we will not waste their time or ours.

The designer also tries to incorporate the ideas of the client if possible and offers alternative solutions if not. We want the customer to be comfortable with the design and the designer.

We believe we must stress the benefits of our designers meeting with the clients to discuss their needs and to coordinate the design and construction of decks, brick

Continued on page 22

A small, older home (above) required a landscape of smaller plants with an illusion of distance from the street.

Jim Gibbs is president of Greene Bros. of the Atlanta, GA area, winner of numerous landscape awards. Greene Bros. operates a 200 acre nursery, and separate companies for residential design, commercial design, residential landscape and commercial landscape.

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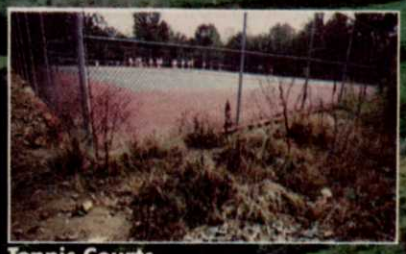
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Circular driveway and berm made this simple, boxy house stand out.

and rock patios, walls, walks and garden features such as gazebos and arbors. Our designers are also involved in the design and construction of swimming pools and guest parking, garden rooms and are very involved with many aspects of landscape design. We find the client benefits greatly from hearing the designer coordinate this construction and that the designer is pleased with the overall effect of the landscape design. We find that if the designer is pleased, the owner will usually be pleased.

Because of high interest rates, the trend in Atlanta is to remodel a home, redecorate the interior and extend the living areas to the outdoors by adding patios, arbors, gazebos and other landscape features. We believe in the master plan which the client can follow and complete in phases. I think you have to establish your market and we have found that the market we want to cater to is the market that believes in quality and appreciates the benefits of dealing with a professional company.

Small boxy house

This house is a very small house and the owners did not wish to buy a larger home, but chose rather to develop and remodel this home the way they wanted. Consequently, major changes were made to the yard and the home as well.

When we started working with the Jones', the house itself was very unattractive. It was a very boxy house with simple driveway and a narrow set of front steps. The front porch was too narrow to be usable and therefore a change was made in the porch and steps were added across the entire length of the porch. The steps now link the home to the new circular driveway we suggested. The porch now serves as a walkway to the front entrance.

The original driveway came up the side of the yard and there was no garage or guest parking area. We designed a circular driveway which provided not only a place for guests to park, but also added more depth to the house. As you can see in the photograph, it looks like the house was moved back twenty five feet on the lot. In order to block the driveway from the street and soften the large amount of parking, a berm was created with mass plantings of dwarf chinese holly with a groundcover of english ivy. Red maples were planted along the drive to add shade.

Originally, the house was painted a very drab white color. The color was changed to Holt's storehouse gray with Blair House green shutters. Grayish colored slate was chosen for the porch paving. A pierced brick wall was constructed along the right side of the house where the old driveway had once been, and a brick walkway was installed to connect the front area to the back patio. An iron gate was installed for both function and aesthetic reasons.

The front plantings are very simple but give a variety of color and texture such as the round leaf of the compacta holly and the sharp pointed leaf of the carissa holly. This landscape is very simple and has greatly enhanced the value of this home.

In the middle of a pasture

The next house we are showing was located on a thirty acre farm in the middle of a pasture. The drive was on the left and ended in a recently enlarged parking area which accommodates nine cars. We designed a circular driveway and changed the entrance so traffic can enter a parking forecourt and exit without seeing the parked cars. We installed a small brick wall to retain the area and used the dirt to construct mounds with large plantings to screen the parking area and the house next door. We simplified the landscape by keeping it very symmetrical and used an assortment of groundcovers throughout the landscape for low maintenance.

Continued on page 27

Green Brothers changed a flat pasture into a mounded estate with a forecourt to hide the parking lot.

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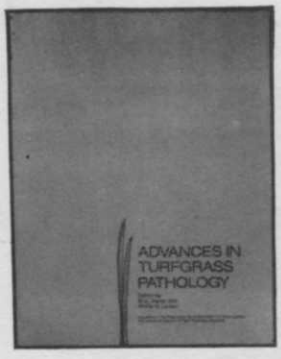

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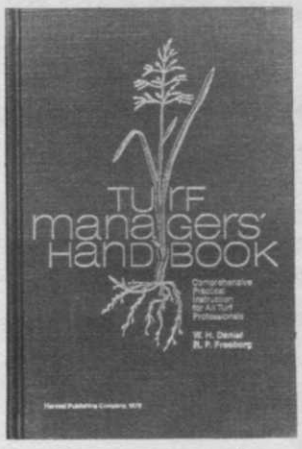

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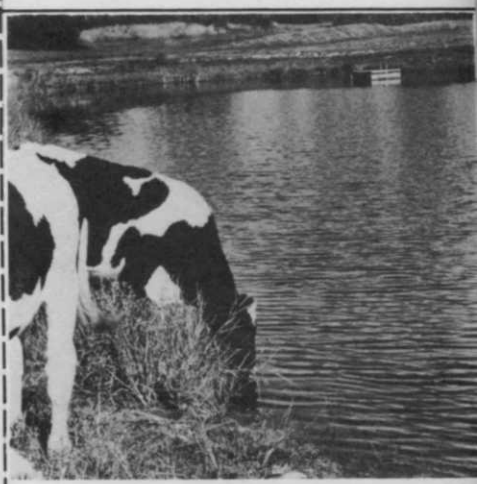

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If it concerns turf, it's in the TURF MANAGERS' HANDBOOK!

RENOVATION *from page 22*

On top of a hill

The third home was located on top of a hill. The first thing one noticed when approaching the house was the garage doors and the windows above. We explained that this needed to be softened and suggested adding a cedar deck to the vertical element. The stark white color of the house was not in keeping with the wooded lot so we painted it a tan color which would blend with the tree trunks and give one the feeling of living in the trees.

To make the front entrance, which was set back in the corner, more inviting and visible, we added a series of steps and landings to create an entrance courtyard. We removed the double windows in the dining and breakfast rooms and added double french doors so the owners could walk out on the deck to sit and have coffee. We added raised planters with the various shrubs for texture and color contrasts.

There was more construction at this particular home in the decks and planters than there was in the landscape which was only $3000. The deck work was approximately $13,000 and the brick work $4000. Without the decks and planter, we would never have been able to change the entrance to this house. All of this work was coordinated by our company. These clients were so happy with their front landscaping that we landscaped their back yard.

Problem with access

The owners of the fourth home were concerned about the entrance and the garage under the right wing of the house, as no one used the front door. We explained to the client that one reason that the steps were difficult to walk up was because they had 9-in. risers instead of 6-7-in. risers and 9-in. treads instead of 14-16-in. treads. There was also not adequate room for parking. The parking area needed to be widened from 11-ft. to 22-ft. so that access to the garage would not be impaired. By adding a series of steps and landings, the entrance was made more inviting and accessible. As the house had existing rock, rock planters were designed using plant material with varying textures and color contrasts.

The dominant feature of this hilltop residence was the garage until a deck and paint job helped the house blend with the landscape.

A poorly designed front entrance had to be corrected here with a larger parking area and a more inviting stairway.

Existing concrete decking around the swimming pool was removed and replaced by cedar decking and landings. Adding plantings in raised planters gave the pool an updated look.

Older Atlanta home

The last home is a small one located in one of Atlanta's older sections. The houses in this area are built on very small lots with little space between them, therefore screening was needed for privacy. The porch, walk and driveway were removed and a small brick wall was added, the yard was leveled and a wider drive was made possible. A new brick wall and porch were added. Gates were added to block the side view.

Since the lot was so small, we needed to use plant material that would always remain in scale with the house. A very old tree-form crepe myrtle was added for the vertical element needed to soften the left corner. Cleyera, carissa holly and "pure dwarf" mordo grass made up the foundation planting. Tree-form cherry laurels were added to soften the over scale house on the right, while standard tree-form photenia frame the left side. A serpentined planting bed curves to the sidewalk creating an illusion that the house is further from the street than it really is. Various plant materials were added for annual color. **WTT**

ACTION CARD CORRECTION

In the April issue the address for Aquashade, Inc. was incorrect. The correct address is P.O. Box 198 Eldred, NY 12732 (914) 557-8077

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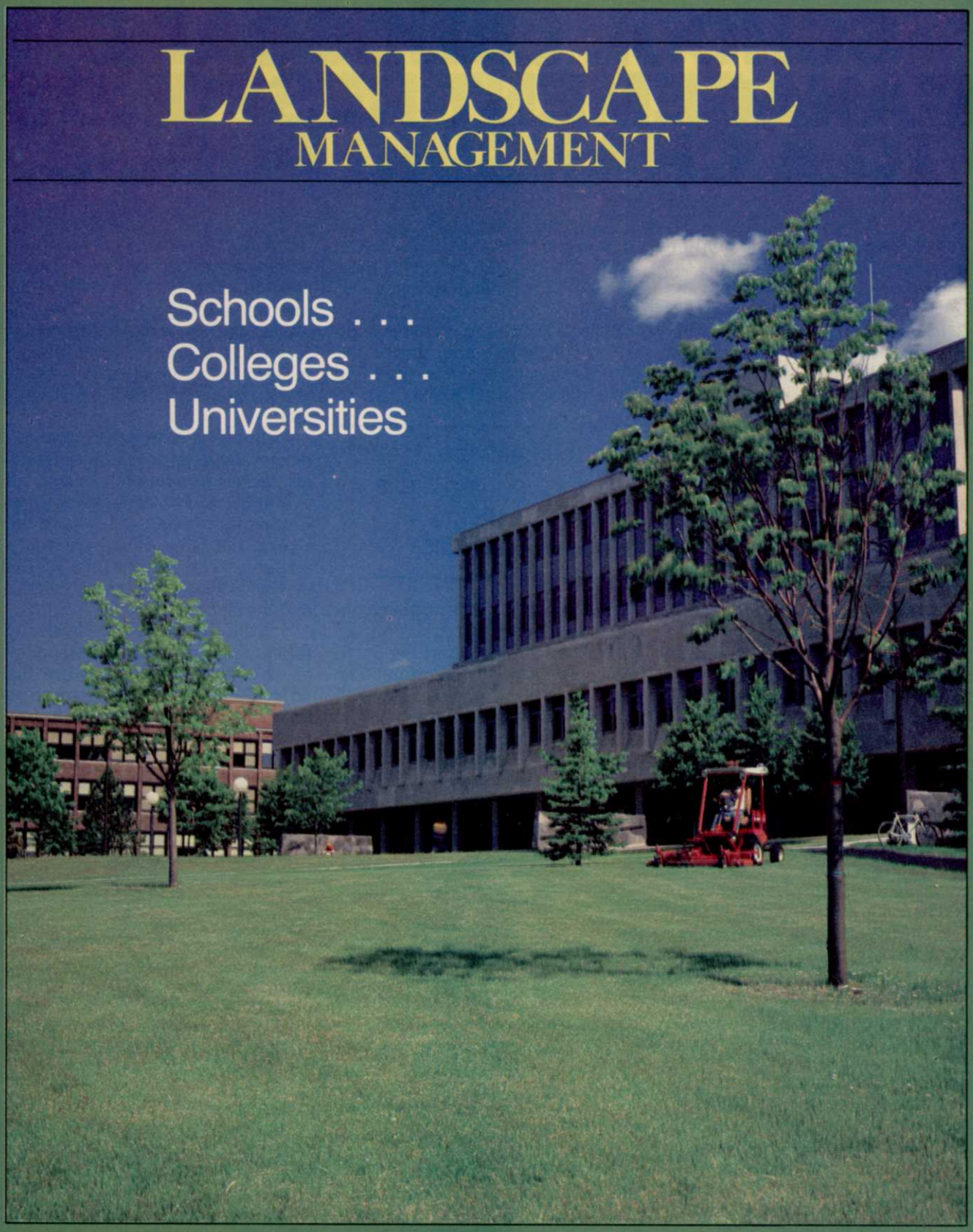
LANDSCAPE MANAGEMENT



WEEDS TREES & TURF

SCHOOL LANDSCAPE MANAGEMENT RESPONDS TO A CHANGING PUBLIC

The landscapes of educational institutions may not represent the highest level of plant selection and care, but they do represent a significant percentage of the acreage maintained in the United States. Approximately two million acres are under the care of physical plant administrators of public and private schools, colleges, and universities in the United States.

Decline of student population after the Baby Boom generation received its education has caused consolidation of public school districts and some school closings. Still, more than 30,000 educational institutions seek to efficiently maintain their landscapes.

A recent *Weeds Trees & Turf* survey showed school landscape managers get by on budgets which increase less than ten percent per year. A fourth of the respondents reported no increase in the past three years, however, public schools utilize requisitions for many purchases which may not be included in the maintenance budget. Improvements for drainage, equipment, and special projects are added if needed. Only 12 percent said equipment purchases had been delayed by economic conditions.

Nearly a third of the schools reporting hire a landscape contractor for a portion of the maintenance of landscapes. The amount of work performed by contractors averaged less than 25 percent. A previous survey of landscape contractors by WTT indicated this type of work was remaining constant but not growing. They also reported problems with specifications, bidding and payment for public work.

The average respondent to the school survey said he has a landscape budget of $51,000 to maintain more than six facilities on 153 acres. More than half employed 15 or more people to perform the work. Clearly, the landscape budget does not include salaries and benefits.

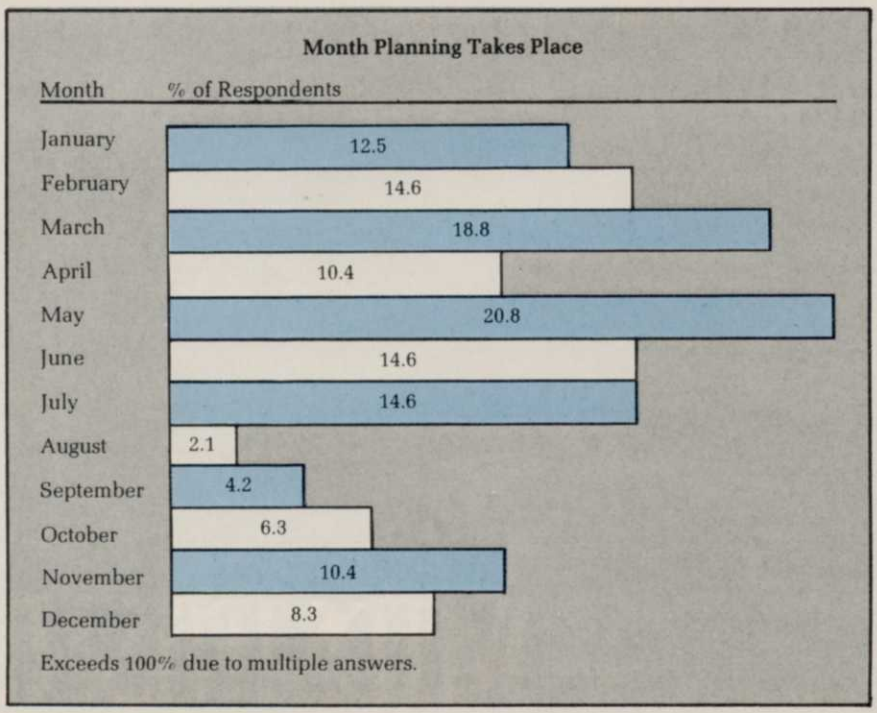
School landscape managers do most of their planning during the month of May. Secondary planning takes place in late winter and in early summer. Purchasing is heaviest from March through June, although more than half reported some purchasing year-round. The least amount of buying occurs in the fall and early winter.

> Less than half the schools reporting had a certified pesticide applicator on staff.

Two thirds of the respondents spend less than $10,000 per year on equipment, even though more than half reported repair work on equipment was performed by a full-time mechanic rather than a distributor's service department. The following profiles indicate distributor service is a better idea although turnaround of less than a week is sometimes difficult for distributors.

Following equipment are expenses for irrigation, plant materials, herbicides and fertilizers, all averaging $5,000 or less per year. Compared to other markets in the Green Industry, these are small amounts. The significance of the market is supported by the volume and the stability.

Schools, like parks, are basically functional, yet low maintenance areas. The athletic fields are the only part of a school landscape receiving special care. Often, it is the contractor performing those functions which exceed mowing and perhaps annual fertilization.



Typical Manager of School Landscape . . .

1. Carries the title of Superintendent of Buildings and Landscape.
2. Is responsible for more than six separate facilities.
3. Cares for an average of 153 acres.
4. Manages a staff of more than 20 persons.
5. Has a budget for landscape supplies of more than $50,000.
6. Buys materials every month of the year.
7. Hires landscape contractors for specific tasks in 40 percent of the cases.
8. Has a natural turf stadium to manage.
9. Goes to his extension agent with problems first.
10. Has the authority to purchase landscape materials.

Private institutions are more likely to exceed basic maintenance than public ones.

On an average, fertilization, weed control, mowing and overseeding are performed by more than half of the schools responding. More than 80 percent fertilize and apply herbicides once per year. Overseeding is done in slightly more than half of the schools due to foot traffic wear.

Athletic fields are aerified by more than half the respondents. Topdressing and disease control of athletic areas are performed by less than a third of the school landscape managers. Irrigation is also used by a third. Wetting agents are used by 6 percent of the group.

Turf Maintenance Practices Performed by Schools by Percentage of Total.

Practice	Athletic Areas	Non-Athletic Areas
Fertilization	82	82
Weed Control	78	82
Overseeding	66	58
Aerification	54	44
Disease Control	34	32
Irrigation	34	30
Topdressing	30	28
Wetting Agents	12	6

Forty-four of the school respondents have someone on staff who is certified to apply pesticides. This excludes the use of restricted use chemicals unless the application is performed by outside contractors for more than half of the schools in the country.

Nearly 75 percent have stadia to manage. Since sports events are often the only source of income to schools beside taxes or tuition, the attention to these areas is highly justified. More than ten percent of the respondents have an artificial playing surface for their stadium field.

When a school landscape manager has a problem he goes to his extension agent most of the time. Next to the extension agent, distributor representatives or trade publications are used to find a solution. More than a third belong to or ask support from local or national trade associations.

More than 75 percent of schools have a stadium to maintain.

The school landscape manager makes the buying decision in two thirds of the cases and recommends what to purchase in half the cases.

Public school property is occasionally maintained by the municipal or park landscape staff. Both parks and schools have cut labor in the past two years and looked for ways to increase efficiency. Parks and schools have been major users of chemical trim over mechanical trim. Ornamental plantings have been reduced to cut maintenance.

The future for schools, despite a likely drop in enrollment, is more intensive use of limited space. Management practices will have to improve to provide a safe recreational area for all seasons.

Despite tax-weary citizens, a well publicized and well explained need for landscape improvement of school areas can provide the means to meet wear levels. The following profiles give examples on how school and college landscape managers deal with economic pressures. **WTT**

George Toma discusses the reasons why the Chiefs and the Royals are so gung ho on immaculate turf:

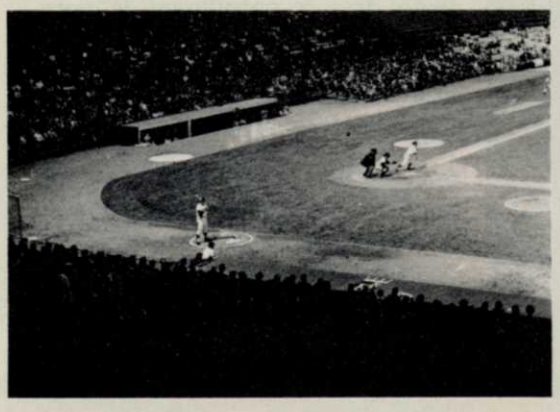
His comments will make every turf pro feel a sense of pride.

The Truman Sports Complex in Kansas City is unique in all the world. A 78,000-seat stadium specifically designed for football, and a 42,000-seat stadium specifically designed for baseball. Indeed there is not a bad seat in the house. Without exception, visiting media who have occasion to see every stadium in the land are universal in proclaiming it the *most beautiful sports complex in the world.*

Obviously the physical construction is a major factor in its charm. But surveys show that the landscaping on the perimeters and traffic islands plays an important role in attracting attendance.

Turfmen of the world, take a bow!

But if immaculate turf and ornamentals help attract crowds, they also help sharpen the skills of the athletes. "The management of both the Chiefs and the Royals know that football and baseball are games of inches," says George Toma, groundskeeper of the complex, "and so they are concerned with even the smallest details that could have a bearing on victory . . . and they believe that environment has a psychological effect on professional athletes."



The role of turf

Toma goes on to say that the Chiefs know that football players have a deeper appreciation of perfection if they practice on immaculate turf, "and so we keep the practice field absolutely perfect."

The Royals on the other hand are primarily concerned about the turf on the slopes beyond the centerfield wall adjacent to the scoreboard. It's against this backdrop that the Royals hold batting practice, and they don't even want a gum wrapper on the grass, let alone an extraneous weed that would affect the concentration of the hitter.

Remember, we're talking about batters who have such remarkable eyesight that they can count the seams on a base-

ball coming at them at 90 miles per hour. You better believe they could see a weed in that turf beyond centerfield . . . and you also better believe there better not be any weeds out there.

Toma's secret weapon

How does Toma keep the Truman Sports Complex immaculate and still find the time to have prepared the playing fields for all 16 Super Bowls and all 16 Pro Bowls that have been played?

"Well, for one thing, we plan on doing everything right the first time," grins Toma, "and Trimec is our secret weapon for controlling weeds totally, completely, in one fell swoop. Trimec does it right the first time. Over the years we've experimented with virtually every herbicide on the market, and nothing works like Trimec . . . nor is any other herbicide so economical when you consider all factors."

"On the outside perimeters of the parking area we've got about 35 acres of non-irrigated turf," continues Toma. "Heaven only knows what variety of weeds it can harbor and blow in to the area we manicure. But we've never found a weed that Trimec won't control."

At the Chiefs' summer camp in Liberty, Missouri, and on the Arrowhead practice field at the sports complex where Toma can use a boom sprayer, he uses professional Trimec. But in smaller, manicured areas he uses Acme® Weed-No-More®, which is a *homeowner* formulation of Trimec.

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TURF HERBICIDE

Profiles in LANDSCAPE MANAGEMENT

THE CRIMSON LANDSCAPE SERVES AS SYMBOL OF REPUTATION FOR HARVARD UNIVERSITY

Harvard Yard, is wired off each spring in preparation for commencement.

When it comes to maintaining its appearance, Harvard, the wealthiest private university in the country is hardly tight fisted. Superintendent of Grounds Benard Keohan survived 1981 on a budget of $1,851,023, which breaks down to a rough figure of $5550 per acre.

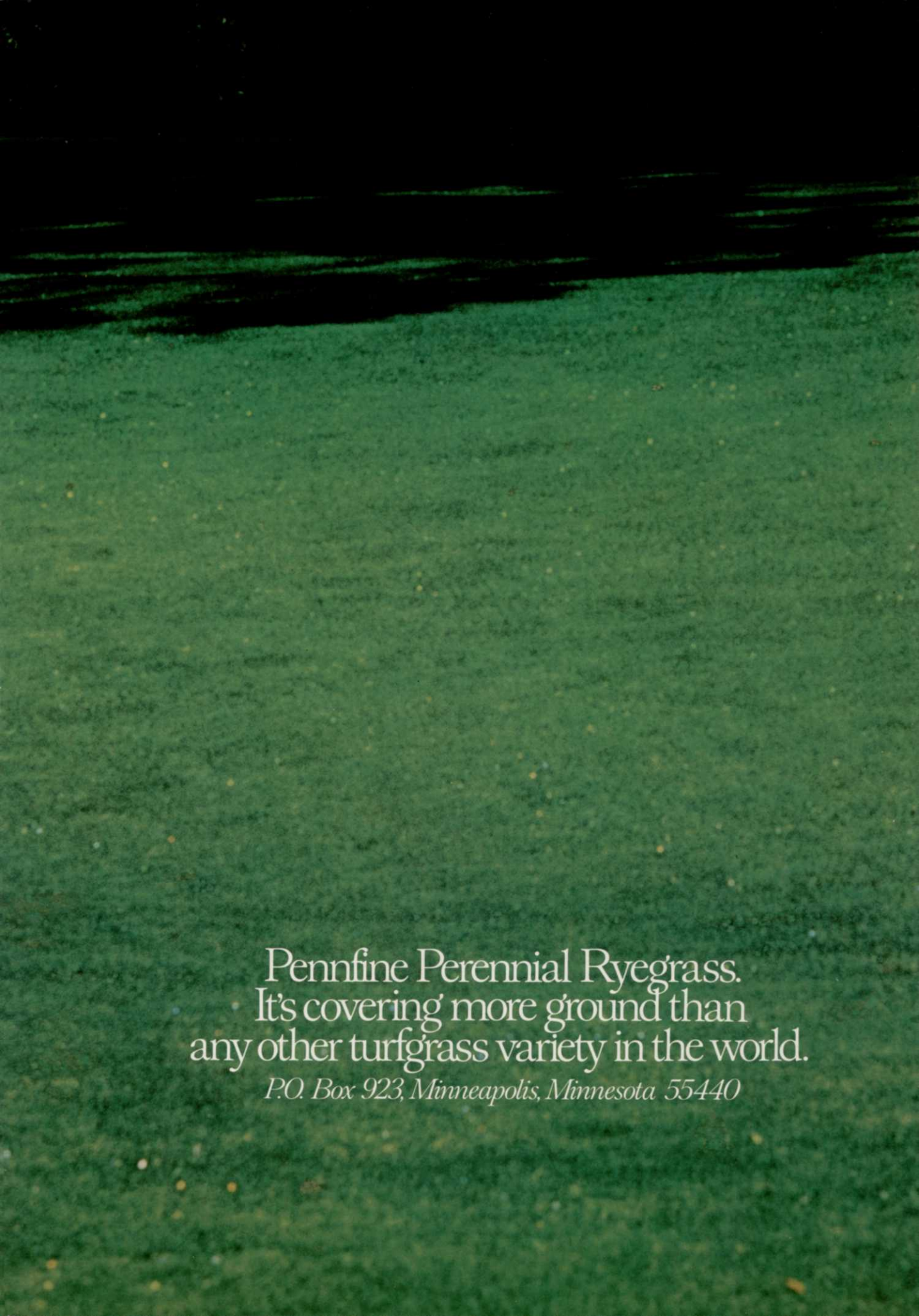
But his job is not as simple as it sounds. The population of a city of 100,000, in addition to a university community of 29,000, traversing back and forth over college grounds make keeping Harvard's appearance up to its reputation a hefty task. Far from the secluded ivy covered haven the name brings to mind, Harvard University is actually situated in the center of a busy urban area. The 333 acres of the University are interspersed throughout the City of Cambridge, MA in such a way that the boundaries are lost and the college properties are used by all.

> Commencement is our main concern when we double our workforce with temporary workers in the spring.

To withstand the constant wear and tear and keep the grounds up to standard, the campus is divided into seven sections according to the intensity of use, each manned by a crew chief, driver and three maintenance workers. The buildings in each section contribute to the maintenance budget of the area in proportion to the number of square feet of space each occupies. The total budget for the sections takes care of the basic maintenance costs

Continued on page 41

For more information on Pennfine circle #121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of turf and tree care, weed control and equipment replacemennt.

"Commencement is still our main concern when we begin our work in the spring, although this has been over emphasized in the past, causing some shortsightedness," said Keohan. This means as many as 20 temporary workers and 20 student workers are added to the permanent staff of 36 workers during the pre and post commencement periods.

Central areas are completely reseeded or resodded each year.

When Keohan became superintendent of grounds four years ago, his priority was to establish turf areas that would last the entire growing season. Part of that program has included a schedule of overseeding of worn areas, fertilization and weed control. Central areas such as the Harvard Yard, must be completely reseeded or sodded each year. Keohan prefers to use gypsum on lawns rather than aerify. It is a product he feels is highly underrated. "Although it takes two to three years to see results, it has helped to create a more firmly established turf and better drainage," said Keohan.

As important as the reseeding program is the protection of the newly seeded lawns from the intense traffic. Working through the faculty members that act as the masters for each house. Keohan succeeded in restricting active play to designated areas to preserve the turf of the more visible areas. The Yard, and other public areas, have been cordoned off by stakes strung with a single wire. Though not attractive, the wires do allow students to sit or study on the grass but discourage games of frisbee and touch football. "We want to produce attractive grounds for commencement, but not at the cost of the students," said Keohan.

The 18 athletic fields vary in purpose from the Soldier's Field Football Stadium to the intramural athletic fields but all are under a program to maintain a durable turf. Because the usage of the fields is so difficult to control, a well established durable turf is particularly important. Care of fields used for collegiate sports takes place sometime after May 15 when the spring sports season is over. Renovations can be done for the summer for the fall sports, but the spring activities must be played on fields that have already had one season of use. Intramural sports have more flexibility in their schedules allowing time to do renovation work during the spring. Games can also be cancelled or rescheduled during heavy rain to avoid the total destruction of a field.

The program for the athletic fields requires basically the same maintenance system as the non-athletic turf but includes aeration twice annually rather than gypsum. As the former head of the Stadium crew, Keohan converted the field from the annual resodding to the seeding program now used.

Up to $120,000 of the maintenance budget is spent contracting out the large lawn care jobs. Weed control contracts make up approximately $5,000. Weed control and most chemical application is done by contract although Harvard does have four certified pesticide applicators on staff. Sod replacement jobs come to $15,000 to $18,000 each year.

Harvard is attempting to preserve many of the old trees on campus and tree care contracts are approaching $85,000 annually. A computer at Penn State is used to record each of the 2,229 trees on campus. The program was begun to monitor the progress of an injection treatment to fight Dutch Elm disease. The University, with the help of Alex Shigo of the USDA, Northeastern Forestry Experiment Station now records all pruning and pest control for each tree on the computer.

By contracting out major turf work, weed control projects, asphalt maintenance and tree work, the University saves manpower, and the expense of purchasing complex equipment. The in-house crews are then left with the time to remove the massive amounts of trash and litter that accumulate, maintain the lawns, beds and plant materials.

Day to day maintenance of the equipment is the responsibility of the crew chiefs and the operators, but most large scale repairs are sent out to the distributor. According to Keohan, "the university garage is usually tied up with work on vehicles, we have found that we get faster and more efficient repairs on turf equipment if we send it out."

Equipment replacement schedules are figured into the budget. The cost of replacement of items such as rotary mowers (with an estimated lifespan of two to three years) is included in the maintenance budget. New pieces such as a Jacobsen hydraulic mower for the stadium and two new 72" Toro units are presented separately as capital expenditures and must be approved by both the faculty and the Harvard Corporation.

Labor is billed to each of the seven sections at an inflated rate. Billed to the faculty at $15 an hour, the men are paid $8. The remainder goes to pay the overhead costs of the Buildings and Grounds facilities and the office staff and equipment.

Most grounds superintendents don't have this degree of financial freedom. Yet, the maintenance needs are unlikely to decrease at a school that continues to receive 12 enrollment applications for each opening, even in times of scarce tuition funding. As the University expands its academic functions and facilities, the maintenance work load will continue to grow. But with a minimum yearly budget increase of 10%, it's doubtful that the grounds department will suffer. **WTT**

Harvard spends up to $120,000 per year for outside contractors for landscaping.

For more information on Pennfine circle # 121

Profiles in LANDSCAPE MANAGEMENT

SUPERINTENDENT MAXIMIZES TIGHT BUDGET WITH CREATIVITY AT CAL POLY, POMONA

Trees are pruned selectively, not formally.

Wayne Smith would like to spend $350,000 to maintain the campus of California State Polytechnic University, Pomona. What he really spends is closer to $75,000. "I consider my job very challenging," Smith told *Weeds Trees & Turf*.

Tight budgets are just one of the problems that make landscape maintenance challenging for superintendents at large public universities like Cal Poly and small private schools such as Loyola Marymount University in Los Angeles. While the schools themselves might differ greatly, the grounds superintendents often find themselves facing similar problems. *(See Loyola, page 46)*

"We're the nicest looking school in the system," said Smith, "because of our willingness to plant shrubs and trees for plant identification." Cal Poly, Pomona is well-known for its programs in ornamental horticulture, landscape architecture and engineering. CPP's planting project is the most ambitious encountered by *Weeds Trees & Turf* in the recent past. Over the next two years, CPP is adding 1200 species of drought-tolerant trees. This is in response to a plan that will cut the school's water supply by 50% in 1985. "The trend is to develop more drought-tolerant species, drip irrigation and drought-tolerant turfgrass," said Smith. "We want to create a beautiful campus but also use as many drought-tolerant species as possible."

In many ways CPP views its role as a model for other campuses. As the director of landscape services, Smith is directly responsible for the importation of 1200 species of drought-tolerant trees from Australia, South Africa and the Mediterranean. Donning another hat, Smith is the program director of the Landscape Technology Certificate Program. The program is designed for people who want to learn without the pressure of tests and term papers. Started in 1980 by Smith, the program has been very successful in getting information to people who could only make it to evening classes. Classes are six weeks long and 12 courses earn a student a Landscape Technician I Certificate. An additional 12 courses are required for the Landscape Technician II Certificate. Thirty landscape and horticulture courses are currently in the curriculum.

The maintenance system used by Smith at CPP is also innovative; designed to increase worker satisfaction and productivity. Smith has tabbed it "CPMS", for "Campus Programmed Maintenance System." "We use the motto, 'Work smarter, not harder,' " said Smith. "The premise behind our system is that workers have their own areas but they also work in crews." Grounds workers at CPP concentrate on individual areas in the morning, then work as part of the crew in the afternoon. "A lot of campuses have the 'one man/one area' system," stated Smith. "We try to mix it up so the men help each other out and so far it's worked very well."

One example of CPMS in action is CPP's mowing schedule. There are 52 acres of turfgrass that have to be mowed each week and before Smith instituted CPMS different workers mowed their areas on various days. Now the whole campus gets mowed in one day because the men work together on a

Continued on page 44

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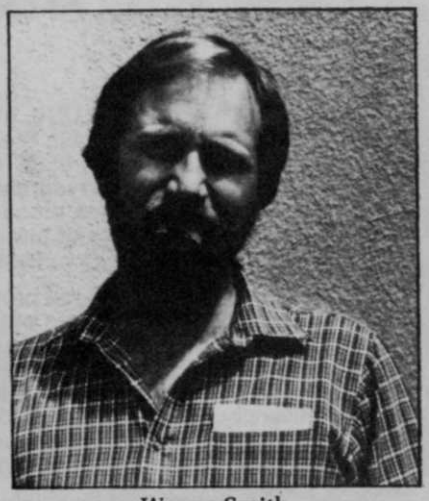
large mowing crew. An added benefit is an increase in student safety. During the summer the school switches to a four-day/10-hour work week but the grounds crew stays on a five-day/eight-hour work week. With that schedule the crew can mow the whole campus on Friday and not have any interference from the 13,000 students.

Smith is responsible for maintaining 500 acres of CPP campus and it takes a 40-man team to do the job. The men are split into two types of crews—grounds workers and specialty crafts. Twenty-one workers man the grounds crew, while the remaining 19 man the equipment, irrigation and tree



Wayne Smith

crews. Smith is particularly proud of his tree crew. "We selectively prune, rather than formal prune," noted Smith. "The crew is not just out chopping up trees." Since so must of the flora at CPP is used for plant identification, the tree crew prunes so that the plant will retain its natural, esthetic shape. To instruct his crew on the proper selective pruning methods Smith runs training seminars. Besides tree trimming, training programs are set up for irrigation and other areas.

Irrigation at CPP is being set up to handle the coming drought and in many ways is a model for other campuses that are facing drought conditions or are just looking to save on water. Smith is a firm believer in drip irrigation and much of the campus is being fitted with drip systems. "We see ourselves as a leader in the use of drip irrigation, especially subsurface drip," commented Smith. "Many people are wary of subsurface drip because you can't see the water but we will continue to expand in this area."

Most special construction is contracted out.

As with most grounds managers, Smith has a deep background in landscape mangement yet with a 40-man crew many of his problems are with people, not plants. He noted that on the average week his job is 40% landscape management and 60% personnel management (and on some days it is 100% personnel management). Business and personnel management are two areas that grounds superintendents should have more background, he confessed. "My biggest headaches have been personnel problems, not that the grass in the quad is burning," according to Smith. "With my technical background I can solve that but when John Doe says 'Stick it in your ear,' you have to know to say the right thing. You have to know how to manage people. Some days it's a nightmare but it is part of the job."

One area where CPP is not unique is its budgeting. The state of California has put the university on a complete monetary freeze. There was no money available for additional personnel, fertilizer, pesticides and other maintenance addenda as of Spring, 1982. For the past three years the school has not had a budget, in the traditional sense. The fiscal year runs from July to July and every year Smith submits a budget detailing how much money will be needed to satisfy the maintenance under his Campus Programmed Maintenance System but he has yet been able to follow it. At various times during the year it is unknown if money will be available for maintenance chemicals. "In a sense, we have been making ends meet by the seat of our pants," contended Smith. "But that is the real world and that is what I tell my students."

Smith would like to contract some work out but often his requests are turned down. He would like to have his pest control done by outsiders but that has not been okayed. "That would alleviate us from purchasing the chemicals, handling, storing and applying them," said Smith. Many special construction projects are contracted out but almost all the maintenance work is handled by Smith.

At CPP there are vast numbers of additional trees and shrubs that are used for plant identification. That creates increased maintenance for Smith and his crew yet his "budget" is on the same formula as other state schools. "Most state universities have a lack of manpower, materials and money," said Smith.

WTT

RECESSION OR NO RECESSION, THE TAXPAYERS APPROVED HIKE FOR AMHERST SCHOOLS

As the town of Amherst, NY begins to feel the pinch of the economic downturn prevalent in the western New York area, Herb Thurnherr superintendent of grounds for the Amherst Central School District, has tripled his budget in the two years since he took the job. Thurnherr has performed the unusual feat of getting the needed funds from a community that has experienced a mass exodus of the chemical and steel industries that once made the region prosperous.

Challenged with salvaging a landscape program that had fallen into neglect, he realized that public relations would be the name of the game. "I realized that the targets of my campaign should be the people who pay the bills, so I first approached the taxpayers rather than the school board," reasoned Thurnherr. Working through the PTA, he spoke directly to concerned citizens to further their understanding of the purpose of the grounds department. He succeeded in convincing them that a much larger budget was necessary, not only for a more attractive physical plant, but for the safety and recreation needs of their children.

Thurnherr emphasized subjects that citizens were sensitive about such as Title IX, requiring schools to provide equal athletic facilities for men and women, and the school's liability in cases of injury on the school grounds. The resulting pressure in the school board from citizens' groups, armed with sufficient information, brought about eventual budget alterations.

The increasing popularity of women's sports was one viable argument. As are most superintendents, Thurnherr is caring for athletic fields that now carry nearly twice the amount of traffic they did a few years ago. Games can no longer be moved to an empty field when the scheduled area needs maintenance or is flooded by a heavy rainfall. Thurnherr explained that "the heavy use of athletic areas requires not only extra maintenance but we also had to install a new drainage system to keep all the fields usable at all times." A $45,000 drainage system financed through a bond issue was recently installed as a result.

Liability of the school in cases of injury on the property is another issue Thurnherr has emphasized the importance of. To the citizens, keeping the school free from liability means keeping it free from large unexpected financial drains. To that effect, Thurnherr has enacted a police-enforced night curfew that has also reduced the amount of vandalism to the buildings and grounds.

Working with an annual budget of $65,000, Thurnherr has been able to begin refurbishing the neglected lawn and athletic turf. One of his first objectives was to rid the lawns of an overwhelming weed and crabgrass problem using herbicides. He quickly found that he had another public relations problem on his hands. Close to the Love Canal and other well publicized chemical waste sites, the western New York residents were extremely sensitive about the use of chemical pesticides. Thurnherr went back to the PTA and negotiated a mutually acceptable schedule that would allow three days after spraying before students would be able to use the treated areas.

Located in a region famous for foul weather, snow removal itself is a major part of the job for Thurnherr and his crew. Heavy buildups of snow and ice must be removed religiously since an injury due to a slippery walkway could result in a major lawsuit against the school. Unfortunately, the consequences of indiscriminate use of salt and a buildup of snow are destroyed plantings and wide swaths of damaged turf on either side of all walks and drives.

Consequently, the program for turf consists of a great deal of repair work. Large areas must be reseeded, fertilized and sprayed for weed control. Thurnherr and his crew of four groundsmen do most of the turf work themselves with the aid of three or four temporary personnel.

Most of the large projects are handled by in-house personnel. Thurnherr prefers to pool his staff and make use of the best use of his own staff before hiring professionals. Often a groundsman will be removed from his normal post to put his particular expertise to work on a problem, while his daily duties are taken care of by a temporary worker.

Thurnherr also gets as much from his equipment as possible. Thurnherr requires logs to be kept on all large pieces of machinery and pays close attention to the condition of the smaller items. He estimates that his stress on maintenance had added two or more years to the expected useful life of most of the equipment. Most of the preventative maintenance can be done by the employees, and repairs are very often taken care of in-house with the help of the school auto shop.

Problems that cannot be solved in-house are immediately sent to the distributor. At the end of each season, all equipment is promptly inspected and sent out for work, before being stored for the winter.

Like many school superintendents of grounds, Thurnherr came to his job via the buildings staff. Without a formal horticultural background, he relies heavily on the information provided by distributors and extension agents. Yet he feels his best resource remains the creativity with which he uses what is available. **WTT**

Profiles in LANDSCAPE MANAGEMENT

STUDENTS, NOT AGRONOMICS MAKE SCHOOL LANDSCAPES DIFFERENT AT LOYOLA

Loyola Marymount University sits on 100 acres of prime Los Angeles, CA real estate. It really wouldn't be that hard to maintain except for the 3400 students that keep getting in the way.

Superintendent of Pavements and Grounds Jim Kriste is very safety conscious and goes out of his way to avoid any close encounters with the student body. "We have an unwritten policy to control spraying," said Kriste. "We spray only when needed, use the least toxic chemical possible and finish spraying by 7 a.m." If the wind isn't bad, the grounds crew will use a small 3-gallon sprayer throughout the day.

Sometimes the best laid plans go awry. Due to a weed problem on one of the athletic felds Kriste decided to treat it with 2,4-D. The field was a haven for joggers who would stretch on the field and then do their running on the track that encircled the field. Kriste locked up the field, leaving only one entrance open to allow students in and out. Signs were placed at the entrance and all around the field warning students that pesticide spraying was taking place and, therefore, not to lay on the lawn. "Well, sure enough, the joggers came in, plopped right down on the grass and proceeded to do their stretching exercises," bemoaned Kriste. "Sometimes I think they like to complain when its to their advantage."

Like many other schools, Loyola is wary of their student population when they are operating equipment. Kriste is responsible for 65 acres of the 100 acre campus. The mall and gardens areas are mowed twice a week while turf areas near classrooms are mowed only once per week, 6-8 a.m. "If we don't get those areas in the morning, then we don't get them" said Kriste. "It's just too noisy. Most likely the windows are open and the next thing you know you have instructors hollering."

In at least one instance student interference led to *decreased* maintenance. The dormitories had grass growing right up to the sides of the buildings. Occasionally the students' desire to leave their windows open and the grounds crew's desire to irrigate came into conflict; especially when a strong wind blew the water into the students' rooms. Kriste solved that problem by removing the turfgrass and replacing it with wood chips and shrubs. Both the shrubs and the student's cross-ventilation are coexisting peacefully.

To Kriste, the student body is an occupational hazard, a part of the job that has to be dealt with and often scheduled around. At Loyola he has been hit with some other problems that do not necessarily come with the territory. Construction projects have been one of the biggest thorns in Kriste's side. "Almost every construction job on campus has caused problems," said Kriste. "They have taken manpower away from the maintenance effort to repair." Typically, the problems involve trucks not parking where they are supposed to or simply creating there own pathways on carefully cultivated turfgrass. "The problems have not been anything we can't handle, but it takes time and you never have enough time anyway," added Kriste.

Budgeting has not been a major problem for the grounds crew, due to Loyola's belief that maintenance is still a high priority. Kriste writes up his budget proposal in February and has it approved in August. Final approval is usually made in September, when the administration gets it final enrollment tallies. Generally the school takes the preceding year's budget and adds an inflation adjustment to it. For 81-82 that figure was 6%, for a bottom line figure of $55,000. Kriste then takes that base figure and splits it up so that he can accomplish the most. Over the past few years Kriste has relegated the most money to landscape maintenance. "That is the money I use to buy my chemicals, fertilizer, plants and seed," said Kriste. "Since I have the room I usually buy a year's supply of chemicals and store them." He buys fertilizer as he needs.

Kriste is a firm believer that his

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job is to maintain what is there and not get involved in too many relandscaping jobs that take time away from normal maintenance projects. His equipment purchases are made with maintenance in mind, not construction. For the occasional construction job the crew will rent equipment. The sluggish economy hasn't hurt Kriste's equipment purchases, yet. "We've convinced the administration that if you want a good job you have to buy good equipment," said Kriste. "If we can't increase manpower then let us increase productivity with better equipment." This year Kriste is scouting for a five-gang mower, an aerifier and a turf sweeper.

Kriste has a staff of eight that toils at keeping Loyola looking picturesque. Being a small, private university these men are called on to do a little bit of everything. As Kriste puts it, "We're responsible for everything outside of the buildings." That includes streets, parking lots, underground leaks, trenching for electrical and irrigation lines, chemical pest control, landscape maintenance and irrigation. To keep the equipment running Kriste has two mechanics, yet parts availability is continually a problem. Loyola doesn't have the room to store parts and usually their parts orders are small. "Our down time will fluctuate because it can take us forever to get parts," said Kriste.

While the Loyola administration gives maintenance high priority they aren't fond of contracting work out. Structural pest control is one of the few jobs contracted out consistently. Kriste would like to see some of the irrigation jobs contracted out, but has yet to win approval. "Some of the irrigation jobs we do would have taken an outside contractor two days," said Kriste. "They took us three weeks. Not because we're slow, but we have other maintenance areas that need work." Kriste also noted that with some jobs there is a lot of equipment which has to be rented.

In discussing management practices Kriste noted that it would probably be helpful to compute a maintenance cost per acre. He cited an instance when the school was building a new pavillion. Kriste sent in a proposal breaking down what it would cost to maintain the area. His final figure was that it would take 2½ men per day to keep up the area. The school's response was "do the best you can with your current manpower in the area" (which was one man per day). "Maintenance per acre estimates would be helpful to show why an area is not up to par," commented Kriste.

Athletic fields at many schools are overused and subsequently undermaintained. Students and coaches at Loyola do their best to keep up with that tradition. The collegiate baseball season runs from September to May and the Babe Ruth league goes from February until July. That leaves from mid-July until mid-September for Kriste to get the field in shape and during that period other organizations are using the campus and fields. The fields are basically perennial ryegrass and Kriste seeds in December to fill in whatever bare spots have popped up. The Loyola coach is a fanatic for green fields and Kriste tries to accommodate by battling the February frost and continually overseeding (especially during the summer).

The coach teaches the team to hit line drives so Kriste cuts the grass down to ¾-in. and turfsweeps to pick up the cuttings. The result is a faster field and a happy coach. Kriste also aerifies, although he has had to convince the athletes the sports shoes with cleats *do not* aerify the turf.

Kriste would like to schedule the campus for five aerifications between June and September to really get it in shape but with all the student activities, scheduling maintenance practices is one of his most difficult management chores. It seems that the campus is always gearing up for some event. The biggest is graduation at the end of May. On any given day there are usually 1500 of the 3400 students on campus. On graduation day that number balloons up to 10,000. In June there is the law school graduation. July, the grounds crew is preparing for the baseball season. In August the cheerleaders work out on the fields and in September the crew gears up for Open House.

"Every new event or student function throws us off," said Kriste. In February and March the school hosts Special Games for the handicapped, Mayfair, Cinco de Mayo celebration and Black History Week. "We try not to crisis-manage. I don't like surprises. It's always in the back of my mind that the president of the school will say that he wants a certain area cleaned up." An unannounced Los Angeles Laker basketball practice had 4000 people and 2000 cars flooding the campus, many of both category making their own paths. Until they create a campus without students, grounds managers like Jim Kriste will be called on to perform their special sort of magic that keeps "Academic America" beautiful.

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GUIDELINES TO TRANSPLANTING

AGE, TIMING, SPECIES AND SITE MAKE TRANSPLANTING A SCIENCE

By DOUGLAS CHAPMAN

Transplanting a tree is an art and a science. Many factors must be weighed, including timing, age, species, pre-treatment, antitranspirants, and site.

Timing is the paramount consideration of transplanting. In general, the earlier in the spring the tree is moved after the frost is out of the soil, the greater the degree of success will be. The only exception to this rule is northern native pine and spruce, e.g. *Pinus strobus, parviflora, sylvetris* or *Picea glauca,* which are best moved in late August.

Deciduous trees become more difficult to transplant after dormancy breaks and growth commences.

Bare root trees should be transplanted any time after the frost is out of the soil prior to bud swell. The root system should never be allowed to totally dry out. Protection is afforded by covering the root system with chips or straw, or simply healing in.

Balled and burlapped trees can be transplanted from the time the frost goes out of the soil into early stages of growth or elongation when the temperatures are still cool. Since the root system remains in the same soil, success is higher, and shock to the tree is considerably less than with bare root.

Pine and spruce are best moved in late August or early September.

Potted trees, those trees dug from the field and planted in containers and held for current year's sales, should be treated as balled and burlapped for transplanting considerations.

Container grown trees are easiest to transplant and have the highest degree of success. They not only have been in the same media, but are simply popped out of the container. The plant is subject to little or no transplant shock. Therefore, container trees can be moved throughout the entire season. One thing to keep in mind when transplanting container grown plants, and this applies for several of the ericaceous plants, is to slice into the root system with a knife to stimulate root growth.

It must be stressed, transplanting before dormancy breaks is most desirable. Transplanting during early stages of growth is acceptable for balled and burlapped and potted trees. Transplanting after leaves fall from deciduous trees in the autumn is acceptable, but also less de-

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Douglas Chapman is horticulturist for Dow Gardens, Midland, Michigan.

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sirable than during dormancy. Our experience suggests spring transplanting is still number one but fall is second best. This disagrees with Himelick's discussion, but each area of the country has its best time for transplanting. Our concern with fall transplanting is frost heaving or dessication during the winter.

Pine and spruce are best moved during mid-August through early September. This is probably due to photoperiod and warm soil conditions favoring rapid root development. These allow the plant to establish a hold prior to dormancy. Planting beyond early September can result in problems with these two plants. Fall planting results in poor root growth and, therefore, a major decrease in transplanting success.

Container grown trees suffer the least shock during transplanting.

Age also affects transplanting success. The smaller or younger the plant, the easier to transplant. Generally, one should have a high degree of transplanting success (above 90%) with trees up to 1 to 1½-inches in trunk diameter.

In larger trees, attention should be paid to the ball size to make sure it is no smaller than the minimum developed by either the American Association of Nurserymen or the International Society of Arboriculture.

With the advent of large tree moving equipment, it has become more common to attempt moving these 4 inch trunk diameter trees. Ease of transplanting is certainly a prime consideration but good rules of transplanting must still be considered. Further, all trees should be mulched heavily with composted wood chips, pine needles, or peat moss.

Species of trees & shrubs certainly has significant impact on transplanting success. Some trees, e.g. willow, alder *(Alnus)*, catalpa, and honey locust *(Gleditsia)*, transplant with a high degree of success while other plants, e.g. birch *(Betula)*, hickory *(Carya)*, and sassafras, are very difficult to transplant. For tree species that have shown historically to be difficult to transplant, one should carefully move the plants only during early spring or winter dormancy. For a more complete list of plant species and their relative ease or difficulty in moving, I suggest you obtain a copy of E.B. Himelick's "Tree and Shrub Transplanting Manual."

Shrub transplanting can be unique. Generally speaking, the discussion above for deciduous trees would be similar when considering timing and method of planting, e.g. bare root, balled and burlapped, or container grown. One main variant in transplanting time is for shrubs in the ericaceous family, e.g. rhododendron, azalea, mountain laurel. These shrubs can be moved almost any time from early spring through early fall (mid-September); avoid the period of rapid growth or elongation. The root system is compact—fibrous, being rarely over 18 inches in depth. Thus the plant can be dug and transplanted with minimum root loss.

Root pruning can often be the difference between success or failure in transplanting. One must realize that the main difference between nursery grown and native trees is the fact that nursery grown trees are root pruned at least every other year. This results in a more compact, well branched, fibrous root system. Therefore, transplanting success is significantly increased.

With the advent of large ball and burlap equipment, some have felt that trees can be transplanted simply from the wild and not cared for in the nurseryman's time-proven manner, e.g. frequent root pruning. This has resulted in trees that are often slow in becoming established with borer damage and frequently other declining symptoms. If the tree does become established, it takes 3 to 4 years before growth again is significant. Root pruning remains a key factor in nursery production and transplanting success.

Antitranspirants offer another opportunity to prolonging the transplanting season while increasing success. Early research by Smith and Chadwick showed clearly that the antitranspirant was not effective over long periods of time but would afford protection during short periods just after application. As new antitranspirants have been developed, similar early studies should again be repeated to see if current products have improved over original compounds. Even though antitranspirants are not effective totally, they are one tool which can improve transplanting success for late spring plantings.

Site can be the difference between success and failure. Generally speaking, most trees and shrubs should be transplanted into well-drained soils. As Herbert Dow once said, "Clay on sand, trees in hand; sand or clay often resulted in tree death."

Sub-surface drainage is critical in moving most trees and shrubs. Therefore, one should condition the soil or, even in extremely heavy conditions, bore down through the clay to provide some form of drainage. Midland, Michigan and Chicago, Illinois are essentially lake bottoms, that is heavy clay soils and sub-surface drainage in these areas is frequently the difference between success and failure. There has been, in the past several years, a considerable amount of research discussing the "bath tub effect" in planting trees. Sub-surface drainage remains an important fact in transplanting success.

The **mechanics of transplanting** are similar for trees or shrubs. The hole the tree is to be placed in should be dug 6 to 12 inches deeper and wider than the size of the root system. Top soil or organic matter should be mixed with the ambient soil. The plant is then placed in the hole. Then the hole is filled ⅔ with soil; watered thoroughly. This first watering is an important step in that it eliminates air pockets, and affords intimate contact between soil and roots.

Sub-surface drainage is critical in moving most trees and shrubs.

The planting depth should be essentially the same as it was when

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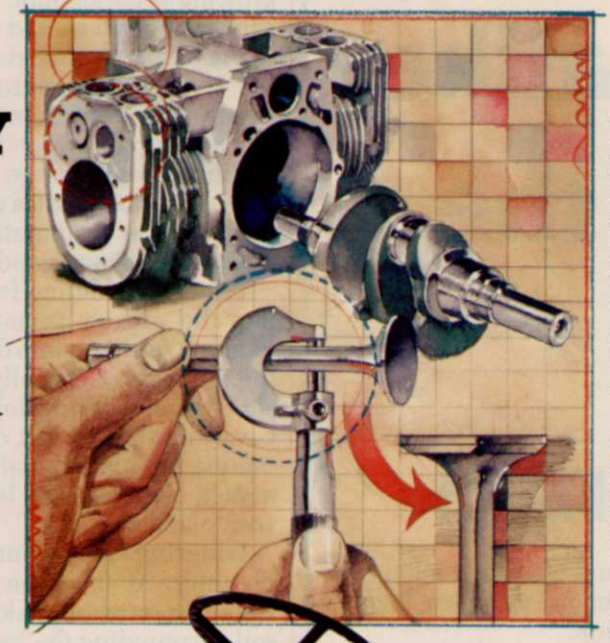

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TRANSPLANTING *from page 52*

the plant was growing in the nursery. One exception would be with transplanting large trees. Here the weight of the ball would often cause the soil to compact under the tree. This settling often results in the tree being planted 4 to 5-in. too low. For large trees transplanting slightly higher than the depth at which it was growing is paramount. After backfilling completely, a saucer of earth should be developed around the base of the tree. This saucer of earth is extremely helpful in that it collects moisture and, therefore, on sites where watering is difficult, provides maximum chance to collect and supply water.

When moving large trees, our greatest success results when the plant is mulched heavily. Mulching not only reduces evaporation and frost heaving but also limits weed growth and, therefore, competition.

When considering fertilization at the time of planting, the experts remain at odds. One recommends working fertilizer into the soil; another, no fertilizer for the first year. Generally speaking, our experience has shown that working dehydrated manure, e.g. sheep or cow, into the soil not only provides some soil conditioning but also a small amount of nutrients. Organic matter certainly has been one factor in assisting us with plant success.

Watering has been and remains paramount in transplanting. At the time of transplanting, one should water thoroughly, soaking the root ball as well as the soil surrounding the ball. This eliminates air pockets. Watering the plant provides sufficient moisture for 5 to 7 days. A thorough watering every 7 to 10 days dramatically increases the success ratio. More frequent watering not only encourages root rot but dramatically decreases transplanting success. More trees rail from overwatering than from underwatering.

Staking of trees—to stake or not! Most agree that evergreens, e.g. pines, spruce, should be either staked or wired in place. This reduces the opportunity for the tree to blow over or becoming loose in the ball. Our experience has shown some desirability to stake 2 to 3-in. trees. Whether this truly helps the tree or simply provides another barrier to keep lawn mowers from the tree trunk is a moot point and certainly not one that has been heavily researched. But in moving large trees, we still feel staking has a place.

The degree of transplanting success certainly includes a science, e.g. time, species selection, mulching, and hole preparation; an art—lacing a ball so that the soil does not become loose around the root system; and luck. If weather conditions are favorable, again, the degree of success is increased, although transplanting can be done almost any time of the year with some success. One must still follow good practices for consistant results, e.g. timing, species selection, site preparation, and watering. **WTT**

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WINTER OVERSEEDING: OLD PRACTICE GROWS UP

By BRUCE F. SHANK

Overseeding bermudagrass greens as they enter winter dormancy is not new. Studies on overseeding with annual ryegrass date back to the mid-20's. What is new is the development and marketing of overseeding mixtures by seed companies to serve this special need.

Overseeding protects the dormant warm-season turfgrass, usually bermudagrass, while improving appearance and playability of greens and other surfaces. Competition from overseeded cool-season turfgrasses can hold back encroachment by annual bluegrass during dormancy of the primary turfgrasses. Traffic wear to dormant grasses is also reduced by overseeding. The purpose of overseeding is more than for appearance.

Courses from the transition zone to southernmost Florida overseed.

The area to be overseeded need not be a golf green, nor bermudagrass. St. Augustine and centipedegrass are overseeded in some cases. Golf course superintendents from Florida into the transition zone use overseeding for winter management. Purdue University's William Daniel advises overseeding of zoysia is not necessary for protective reasons.

The primary seed used for overseeding are annual and perennial ryegrasses; bentgrass (often Seaside); rough bluegrass (Poa trivialis); red, hard, or chewings fescues; and Kentucky bluegrass (Poa pratensis). Research in the 60's proved mixtures of these grasses performed better than single members alone. Most commercial mixtures have three or more of the above turfgrasses.

Annual and perennial ryegrass are included for fast germination. Bentgrass is slow to establish but offers appearance and transition benefits the following spring. Texas A&M's Jim Beard reported decline of the ryegrasses in very cold weather with recovery in March. Rough bluegrasses showed good cold tolerance in Beard's study. It yields slowly in the spring to the warm-season turfgrass for good spring transition. The fescues establish quickly in the fall and these tough grasses provide protection to less wear tolerant grasses. Kentucky bluegrass is slow to establish but can provide color benefits in late winter and spring.

These grasses are applied at very high seed rates and remain juvenile throughout the period. They can be vulnerable to diseases during establishment. If the seed does not make good soil contact it is virtually wasted.

Timing varies according to location. Seeding should take place in late September in the northernmost limits and in early December in southern Florida.

If seeding is done too early, the competition from the warm-season grass will render it useless. If done too late, the temperature may be too low to achieve good germination. Three weeks of preparation may be required before seeding.

O. M. Scotts recommends very low mowing without scalping followed by vertical mowing in several directions to open up the soil, remove thatch, and prevent obvious rows. Debris should be removed. Coring to solve compaction should take place three weeks prior to seeding to allow the holes to heal. Some of these steps can be consolidated by use of a seeder which uses a disc to cut grooves for the seed.

The seeding rate can approach 20 lbs. per 1,000 square feet or more. After the seed is down, the area may be dragged to improve seed/soil contact.

Research has shown that topdressing greatly improves germination. Daniel recommends spiking between seeding and topdressing. A complete starter fertilizer should then be applied and the area keep moist for three weeks or more. Application of a fungicide is often recommended to prevent serious brown patch injury.

Mowing can begin a week after seeding at a 5/16-inch until the mixture is established. A second application of nitrogen should follow germination with regular feeding thereafter.

In the spring as the temperatures rise and the warm-season turfgrass begins growing again, the cool-season grasses should not compete with it. Whereas bermuda may leave dormancy in less than two weeks in the deep South, it may take five weeks or more in the transition zone. This should be considered when selecting an overseeding mixture. Also, different species and cultivars respond differently to overseeding. Some adjustment may be needed.

Winter overseeding protects warm-season grasses while in dormancy.

John Madison, former turfgrass specialist at the University of California, recommended in his book, *Practical Turfgrass Management*, that heating cables in the soil surface could eliminate the need for overseeding by preventing dormancy of the warm-season turfgrass. This idea has apparently lost out to the believers in overseeding. **WTT**

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In Southern climes, Superintendants may choose either the fine-bladed perennials or the old standby Oregon annual ryegrass for their winterseeding program.

In the North, the turf-type perennials have proven their quality and adaptability while Linn Perennial is still doing yeoman work as a utility grass.

All of them do a job in the rough, on the fairway or on tees.

Remember, Ryegrass not only germinates in a matter of 7-10 days, it responds rapidly to fertilization and does not require pampering.

Write for a Free Four-Color Brochure

"Ryegrass on the Golf Course"

Oregon Ryegrass Commission
P.O. Box 3366 - Dept. 1
Salem, OR 97302

Circle No. 127 on Reader Inquiry Card

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Dental Management	100,005
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Paperboard Packaging	12,111
Paper Sales	12,592
Pest Control	14,684
Professional Remodeling	36,627
Quick Frozen Foods	20,785
Rent All	11,139
Roofing/Siding/Insulation	18,310
Snack Food	9,138
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Weeds Trees & Turf	43,041

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B

VEGETATION MANAGEMENT

By Roger Funk, Ph.D., Davey Tree Expert Co., Kent, Ohio

Q: *Could birds be killing the main leader of a spruce tree by perching on it? I was told that this could be the reason that some of my trees have multiple leaders. (New York)*
A: Large birds such as redwing blackbirds have reportedly killed or damaged the main leader of certain pines and spruces, resulting in competitive lateral growth. If, as the laterals turn upward, they, too, are damaged, the top of the tree appears almost as a witches' broom. Injury occurs to tender candle growth in the spring, particularly when trees are planted next to open fields.

Q: *I have noticed that peat-vermiculite added to soil as an amendment will absorb water within a few days but that milled bark stays relatively dry for weeks. Since this can affect the survival rate of new plantings, how can we wet the bark more rapidly? (California)*
A: Milled pine bark attained only 58 to 78 percent moisture saturation within 45 days, according to a report from the California Cooperative Extension Service. Preparing the soil mix well in advance of planting should solve the problem. Wetting agents may also be helpful.

Q: *During this past spring high winds broke large limbs and uprooted trees in our area. The roots of the trees were very shallow. What can we do to increase rooting depth and reduce storm damage? (Illinois)*
A: Contrary to popular opinion, the bulk of tree roots occur in the top three feet of soil with many of the feeder roots near the surface. Roots grow where soil conditions support growth. They cannot grow where oxygen is limited or where the soil is compacted and hard to penetrate. The availability of oxygen decreases and the resistance to penetration usually increases with soil depth. In addition, the highest concentration of available nutrients usually occurs near the soil surface. Therefore, this is where most of the roots are located.

Deeper rooting can be encouraged by aerating the soil within the root area. Vertical holes drilled to a depth of two feet and spaced 18"-24" apart is the most common practice. Pressure injection of liquid soluble or suspension fertilizers will also increase the porosity of soils while providing nutrients below the soil surface.

Pruning to reduce wind resistance and cabling and bracing to support weak crotches are standard practices for minimizing the potential for storm damage.

Q: *What is the best method of seeding a small slope with turfgrass to prevent erosion? (Ohio)*
A: After preparing the soil, seed and gently rake for good seed-soil contact. Protect the newly seeded area with a mulch such as straw, burlap, cheesecloth or Soil-Gard, a biodegradable latex material. It is important to keep the seeds moist until proper establishment. Ryegrass is sometimes added to the seed mix to provide more rapid germination and soil stabilization.

Q: *We have a gravel footpath on campus which is being eliminated. If we remove the gravel, can we overseed the area with grass? (Pennsylvania)*
A: If a soil sterilant was used, test the soil for residual either by chemical analysis or bioassay with ryegrass. Other problems that may have to be corrected before establishing turfgrass are alkaline soil reaction induced by limestone gravel and compaction from foot traffic.

Q: *Have you heard of using a type of bandaid to treat wounds caused by mowers? (Ohio)*
A: I am not aware of a commercially available product, but perhaps you are referring to a home remedy.

Wrap the damaged bark in place with moist cloth and cover with plastic. Keep the cloth moist for several weeks. If the surface is green when scratched, regeneration has occurred and the wrapping can be removed.

Q: *Exactly what is a surfactant and when should we use one in our spray mix for trees? (New York)*
A: Surfactant is an abbreviation for *surface active ingredient.* It refers to materials that are active on the surface of water molecules, wettable powders, emulsions or other components of a spray mixture. The surfactants for which arborists have the most use are wetting agents (spreaders), stickers, compatibility agents, antitranspirants and foam suppressants. Since the term surfactant includes a wide variety of chemicals and applications, you must know the purpose of the recommendation to "add a surfactant" in order to determine when and what type of surfactant to use.

Q: *I have recently become superintendent of a golf course which has had very little ferilization and aerification in the last ten years. The fairways are about 80% tall fescue and 10% chickweed which is spreading. We don't have watered fairways. What's the best way to establish bluegrass? (Illinois)*
A: If you prefer only bluegrass on the fairway, it is best to get rid of existing vegetation by using Roundup and then re-establishing the bluegrass.

Or, if you don't mind tall fescue with bluegrass, first try to control the chickweed by using Trimec or Dicamba (Banvel) herbicide. Then verticut, rake and seed the fairway with bluegrass seed. Bluegrass seeds are very slow to germinate and establish.

Send your questions or comments to: Vegetation Management c/o WEEDS TREES & TURF, 757 Third Avenue, New York, NY 10017. Leave at least two months for Roger Funk's response in this column.

PRODUCTS

Vandermolen presents its new Super 88 Mistblower. The sprayer is especially effective on gypsy moths with its 40 foot reach that reaches the lower third of the tree where the moth egg

masses are found. The large six gallon capacity provides the equivalent of 60 gallons of hydraulic spray mix. The blower is powered by a 52cc Kawasaki engine with an electronic ignition.

Circle No. 130 on Reader Inquiry Card

Bermuda King's sprig planter is easy to maneuver around trees, fences and wells. The compact two-row planter has a twenty cubic feet capacity and

comes with spring-mounted furrow openers and block and spring mounted covering discs.

Circle No. 131 on Reader Inquiry Card

Orbex has added High Lift Universal blades to its line of Aladdin blades. According to the manufacturer, the configuration of the blades works to produce a vacuum action that lifts each blade of grass until cut. Clippings,

New **High Lift Universal Blades**

leaves, thatch and debris are then projected into the catcher bag. All 16 models of the blades are made of .156-in. thick high carbon steel tempered for hardness and ribbed for rigidity.

Circle No. 132 on Reader Inquiry Card

Every National has it...

Little decal, Big Savings!

More than telling you belt sizes used on National mowers, the decal tells you that these are standard, off-the-shelf items available from any local industrial supplier, not a special, high-priced part you must order from the manufacturer. And there are a lot more savings with a National...

- **Greater fuel economy.** 44% to 62% less fuel consumption than power robbing, hydrostatic type rotary mowers.
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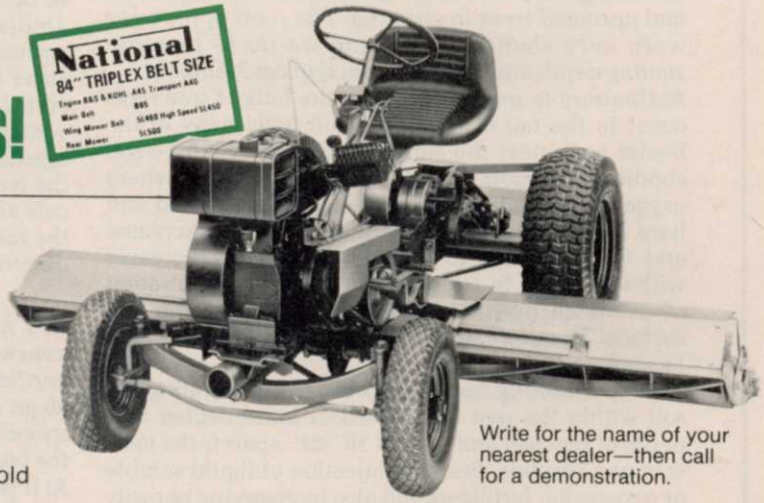

Write for the name of your nearest dealer—then call for a demonstration.

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- **Quality construction.** More years of service. For example, we still cut our own gears out of solid, quality steel blanks.

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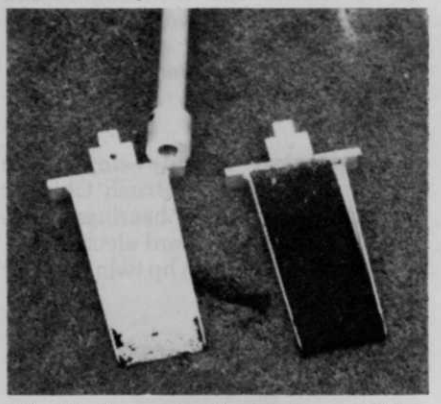
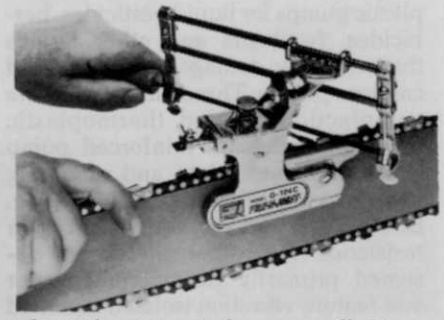
Circle No. 119 on Reader Inquiry Card

Turfgrass Products' Soil Profile Sampler cuts an undisturbed soil profile of turfgrass and other areas, from which observations of thatch, soil compaction, roots and other soil problems can be made. The profile measures 6-in. by



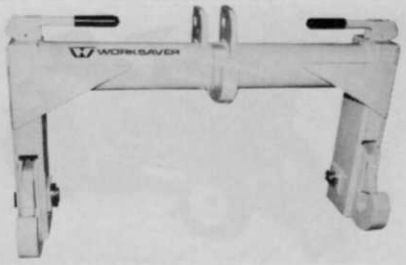
3-in. Turfgrass Products also provides information on techniques for preserving soil samples for use as records or visual aids.
Circle No. 133 on Reader Inquiry Card

Granberg's File-N-Joint chain sharpener has a dial setting file guide for heavy duty sharpening on the bar. Clamps and chain holders keep the exact chain angle and depth gauge height.



The File-N-Joint sharpens all ¼- to ½-in. pitch chain and takes 6- and 8-in. files in sizes from ⅛- through ¼-in.
Circle No. 134 on Reader Inquiry Card

Worksaver Quick Hitches are constructed of heavy steel bar and tubing. The hitches feature non-rotating draw



pins, adapter bushings and a tapered top hitch bracket. They fit most category II and III three point hitch tractors and come completely assembled and ready for tractor mounting. The model HK-502 fits tractors up to 100-hp and the model HK-503 fits tractors up to 220-hp.
Circle No. 135 on Reader Inquiry Card

Chipmunk has a new compact clipper designed for use by in the field by arborists, public works departments, and utilities. Powered by a four cylinder gasoline engine, the 2800-lb. chipper

chips with four 12-in. steel blades driven by a flywheel. Processed chips travel through the exhaust chute aided by a blower and can be discharged in any direction using an adjustable chute.
Circle No. 136 on Reader Inquiry Card

Continued on page 62

Split 'em up in just seconds...then tow it away at 55 mph!

Introducing the new Vermeer LS-150A. Easy to operate. Easy to maintain. Easy to transport. Affordable for the professional and homeowner alike. No need to lift logs. Splitting tower tilts vertically and splits 'em up to 24" long. Rapid 16-second stroke cycle. Interested? Contact your nearest Vermeer dealer today or call us toll-free at 1-800-247-2347 for complete information.*

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Circle No. 126 on Reader Inquiry Card

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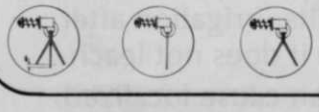
Change mowing or thatching blades in seconds with M-C's patented hanger design.



Four cutting widths from 36" to 72", engine driven or P.T.O.

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Iron Horse Quality Equipment

Circle No. 114 on Reader Inquiry Card

Proggressive Electronics now has the model 521 wire, pipe and solenoid valve locator. Useful for maintenance of zone irrigation, gas, water power and telephone the 521 consists of a transmiter, a receiver, a headset and a ground probe. The transmitter features an on/off plunger, meter for battery

condition and a selector switch to choose output voltages. The receiver is powered by a 9 volt battery and has a battery test button, meter to indicate battery condition, headphone jack and battery saver circuit which automatically shuts the receiver off when its inside the case.

Circle No. 137 on Reader Inquiry Card

Homelite is now offering five thermoplastic pumps for liquid pesticides, herbicides, fertilizers and other liquids that normally damage aluminum and cast iron pumps. Three pumps combine an injection molded thermoplastic polyester and glass reinforced pump body, impeller, volute and mounting bracket with stainless steel hardware, EDPM seals and gaskets for corrosion resistance. Two other models are designed primarily for pumping water and feature vibration isolated mounted skids and Buna-N seals and gaskets.

Circle No. 138 on Reader Inquiry Card

Engineering Products' Power King tractor is a compact 12-hp model that comes with a 42-in. mower. The 1212 model has an all-gear drive system with a four speed transmission that provides eight forward speeds and two reverse. According to the manufacturer, the tractor has a short turning radius and easy maneuverability in close quarters. The tractor is powered by a 12-hp Kohler cast iron engine and features a 42-in. mower that hooks on without tools.

Circle No. 139 on Reader Inquiry Card

Vandermolen has developed the heavy duty Diadem Brush Chipper featuring heavy duty bearings, triple belt drive and a standard electric start. It is powered by an 18 hp twin cylinder

engine. Similar to larger chippers, the rotor design can handle limbs of up to 3

It drives your dirt to drink

...and drain too much or too little water, and you've got problems!... unless you use Aqua-Gro the rootzone water management tool.

Aqua-Gro is specially formulated to eliminate problems from excessive moisture. Its unique blend ensures faster, more uniform water penetration and drainage. Aqua-Gro will provide the desired residual benefits, irrigation after irrigation, because it does not leach. Insufficient moisture can cause localized dry spots and browned out turf.

inches in diameter. The chipper is also easily towed and can be moved by one man when detached from the towing vehicle.

Circle No. 140 on Reader Inquiry Card

Agrafim Irrigation has introduced a take apart drip irrigation emitter, the TA-4 that comes in a one gallon per hour capacity. The top can be easily removed so the emitter can be cleaned in the field. It is available in two configurations: the TA-4R is suited for use as

a riser line emitter, and the TA-4B is a barbed base emitter which attaches on-line to surface placed tubing.

Circle No. 141 on Reader Inquiry Card

Fairfield American has announced that its Pyrenone crop spray has been labelled by the EPA for use against gypsy moth larvae. The pyrethrum-based spray, mixed with residuals, has

an "exciting" action that flushes the insects out of hiding places for far more effective residual performance. The spray also is labelled for control of canker worms and tent caterpillars on shade and forest trees.

Circle No. 142 on Reader Inquiry Card

Vemco has added two new self-propelled walk-behind mowers to its line of flail mowers. All self propelled units feature turning brakes, 360-degree caster wheels and five forward speeds. In rough areas, the blades will fold back on impact with solid objects, preventing blade breakage and the

danger of throwing objects. An optional riding sulky and various engine styles are available.

Circle No. 143 on Reader Inquiry Card

Aqua-Gro provides fast relief. Aqua-Gro moves water into the rootzone reducing run-off and evaporation. More uniform water movement and distribution through the soil profile reduces summer stress and watering costs 30%-50%.

In addition, Aqua-Gro enhances the efficacy of pesticides and fertilizers, while eliminating the problems associated with thatch, compaction, and poor soil mixing.

So use Aqua-Gro. Available in liquid concentrate or spreadable granular from your local distributor. It's an important ingredient to insure the constant healthy growth of turf on grounds, playing fields, and golf courses.

For free illustrated brochure and further information call TOLL FREE 800-257-7797, (in N.J. 609-665-1130, or write:)

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Not only do you save the cost of a new valve, you avoid the nightmare of main line breakage, or debris being washed down the line to choke up other valves and sprinkler heads.

NIS Valve Repair Kits let you install a new plunger (piston), main gasket or O-ring, and new bonnet bolts. Other parts like diaphragms, flow-control assemblies, bleed screw assemblies, or bonnets are available. Hydraulic-to-electric conversion kits, too.

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KEEP 'EM FLOWING

Circle No. 118 on Reader Inquiry Card

Scientific Guide To Pest Control Operations

by Dr. L.C. Truman
Dr. G.W. Bennett and
Dr. W.L. Butts

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The SCIENTIFIC GUIDE TO PEST CONTROL OPERATIONS is designed to provide a sound basis for studying the scientific aspects of pest control and promote technical competence. It places emphasis on urban and industrial pest problems. This volume also covers the laws and regulations concerning the pest control industry.

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WTT 82

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Please allow 6-3 weeks for delivery

NEWS *from page 18*

moisture levels and temperatures.

"Microecosystems simulate field conditions and provide a controlled atmosphere for comparing the effects of various soil types on the lifetime of a pesticide," said David Wehner, assistant professor of horticulture. The technology will also allow different types of pesticide formulations, such as granular, sprays and slow release compounds, to be evaluated in the same soil type.

With the radioactive tags, the researchers will be able to follow a pesticide as it is transformed in the soil. "This type of study which requires radioactive chemicals couldn't be conducted under field conditions," according to Wehner.

The initial studies will be concentrating on the changes in pesticide persistance in turfgrass. If the system proves effective, the researchers hope it can eventually be used to screen new pesticides.

CHEMICAL

Van Diepen joins PBI Gordon Corp.

Dr. Jan van Diepen has been appointed technical director of research and development by the PBI/Gordon Corp. According to J.S. Skaptason, vice president of research and development, van Diepen will concentrate on developing new products for the Gordon Professional Turf Division, as well as the Acme Lawn and Garden Products and Acme Agricultural Products divisions of PBI/Gordon.

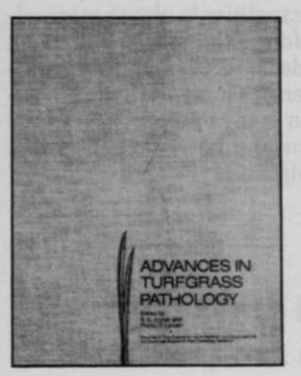
Jan van Diepen joins PBI Gordon as technical director.

Van Diepen has international ex-

Continued on page 66

Advances in Turfgrass Pathology

published by HARCOURT BRACE JOVANOVICH PUBLICATIONS in cooperation with Dr. B. G. Joyner, Dr. P. O. Larsen and Chemlawn Corporation



This extensive volume contains chapters on:

- turfgrass diseases
- cool v.s. warm season pythium blight and other related pythium problems
- snow molds of turfgrasses
- fairy rings
- leaf spot of Kentucky Bluegrass in Minnesota
- initial and filed fungicide screening
- turfgrass disease resistance
- PLUS MUCH MORE!

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ADVANCES IN TURFGRASS PATHOLOGY is a compilation of more than 23 reports and discussions by the nation's leading turfgrass pathologists. Explore the diseases that attack turfgrass. Find out how to conquer the battle of turfgrass diseases.

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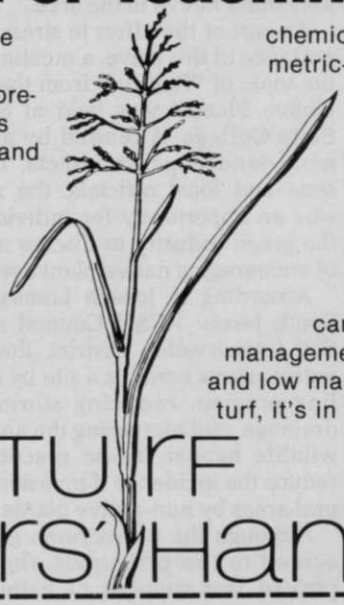
Finally, An Aid For Teaching Turfgrass

Superintendents, Contractors, Lawn Care Managers, New, On-the-Job Reference. The Turf Managers' Handbook is a comprehensive, organized approach to turfgrass science and care. It has been designed and written by leading turf specialists from Purdue, Dr. William Daniel and Dr. Ray Freeborg, for on-the-job reference and as a text for students.

The book contains 150 illustrations and 96 color photographs. Data includes 240 tables and forms. Included are specifications for rootzones, employment, calculations for chemical applications, and extensive metric-imperial conversion. Business and technical aspects of turfgrass management are covered in this 424-page book. Planning, purchasing, hiring, construction, and plant selection are put together for easy on-the-job reference. Markets covered include lawn care, sod production, golf course management, cemeteries, athletic fields, and low maintenance areas. If it concerns turf, it's in the Turf Managers' Handbook.



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HBJ

WTT 82

perience marketing chemicals for Stauffer to the Middle East, Far East and Australia. He covered the same territory while headquartered in Milan, Italy with the Agricultural Division of Montedison Co. Before joining PBI/Gordon, van Diepen was development coordinator of Chipman Inc., supervising the development of ICI proprietary products in Canada.

EQUIPMENT

Manitou B.F. buys K-D Manufacturing

The French company, Manitou B.F., has bought a controlling interest in K-D Manufacturing by acquiring 51% of the common stock of K-D. Both companies are manufacturers of rough terrain forklifts.

Founded in 1946 by M.M. Key of Waco, TX, K-D Manufacturing will remain in that town, and the number of people employed in the plant is expected to grow from 150 to 225 over the next two years.

M.M. Key Jr., remains the president of the company, which has been renamed K-D Manitou. Roland Lepers

and Marcel Braud Jr., of Manitou B.F., have been appointed vice presidents of marketing and finance, respectively.

LANDSCAPE

Native plants stressed for landscape use

Landscapers and nurserymen in the southern region of New Jersey are being required by state and municipal governments to increase their use of native plant species in their work. Municipalities are beginning to encourage the developers to both restore and replace cleared vegetation with environmentally appropriate plants, preferably those native to the area.

As part of the effort to stress the importance of this drive, a meeting under the topic of "Profiting from the Use of Native Plants" was held at Stockton State College. Attended by nurserymen, landscape architects, federal, state and local officials, the meeting was an opportunity for individuals in the green industry to discuss methods of encouraging native plant use.

According to Joseph Lomax of the South Jersey RC&D Council and the Soil Conservation District, the use of native plants benefits a site by controlling erosion, reducing storm water drainage, and increasing the amount of wildlife habitat. These practices also reduce the incidence if invasion of natural areas by non-native plants.

Although the nurserymen generally agreed to the principals, they complained that supplies of native plant species are usually short. Designers were urged to continue to communicate their needs to suppliers so that these shortages would eventually by reduced.

The designers were also instructed by Karl Braun of the N.J. Department of Environmental Protection to seek the consultation of local agencies in assessing the needs of the region, before wasting time and money on inappropriate plantings. Braun warned that plantings must be treated as communities not simply as individuals.

Speakers dealt with the need of many municipalities to obtain more education before creating policies that will cause designers and managers serious problems. These conflicts are being solved in many towns by one to one consultations and between contractors and township staff.

TURF

Natural grass installed for Pan Am Games

The 1982 Pan American Games in Caracas, Venezuela will be played on five natural grass athletic fields designed by Sportsturf International of Salt Lake City, Utah.

Because the Games are scheduled to be played during a month in which the average rainfall is 5-½ inches, a field with maximum drainage was selected. The Sportsturf "TD" Field was chosen for its excellent moisture control. The grass on this field is planted directly in sand which provides a good growing medium and allows the water to be stripped from the playing surface.

During the dry season, the "TD" fields can be watered from beneath the playing surface. This conserves water as well as encouraging the roots to reach deeply into the sand, producing a tough surface.

PESTICIDES

Prices may rise five percent

Pesticide prices are expected to rise no more than 5% next year, according to a report from the Department of Agriculture. This prediction can be compared to the 8-10% rise or last year.

During the 60's and 70's, the use of pesticides increased rapidly, causing the prices to escalate with the demand. Now, as 90% of the major crops are being treated, the prices of the chemicals are leveling out.

Current agricultural trends are also affecting the rate of the price increase. The Integrated Pest Management technique, which requires fewer applications, of pesticides, is becoming popular. On the other hand, there is a similar trend toward minimum-till farming, which requires more herbicide and insecticide. The two are expected to balance out and keep the annual rate of price increase at less than 3%.

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For program, exhibit, and registration information, write the American Forestry Association, 1319 18th Street, N.W., Washington, D.C. 20036.

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WT&T

EVENTS

The current issue of WEEDS TREES & TURF carries meeting dates beginning with the following month. To insure that your event is included, please forward it, 90 days in advance, to: WEEDS TREES & TURF Events, 757 Third Ave., New York, NY 10017.

National Lawn and Garden Distributors Annual Convention, Fairmont Tower, San Francisco, CA, **Sept. 12-15.** Contact Nancy Irving 1900 Arch St. Philadelphia, PA, 215/564-3484.

Virginia Turfgrass Research Field Days, Virginia Tech, Blacksburg, VA, **Sept. 14-16.** Contact J.R. Hall, Agronomy Dept. Blacksburg, VA 24061, 703/961-5797.

Understanding Weeds (A Practical Course on the Biology of Weeds) Purdue University, West Lafayette, IN, **Sept. 12-17.** Contact G.F. Warren, 1130 Cherry Lane, West Lafayette, IN 47906, 317/463-1130.

Northwest Turfgrass Conference, Washington Conference Center, Yakima, WA, **Sept. 20-23.** Contact Roy Goss, Washington State University, Puyallup, WA 98371, 206/593-8513.

Midwest Turf Field Field Days, Purdue University, West Lafayette, IN, **Sept. 27-28.** Contact W.H. Daniel, Dept. of Agronomy, Purdue University, West Lafayette, IN 47907, 317/494-4785.

International Pesticide Applicators Association Annual Convention, Holiday Inn, Seattle, WA, **Sept. 29-Oct. 1.** Contact Pete Tovoli 4202-11th NW, Puyallup, WA 98371, 206/848-3407.

CAN Horticultural Tour of Australia, Oct. 25-Nov. 16. Contact Elaine Thompson, California Association of Nurserymen, 1419 21st St. Sacramento, CA 916/448-2881.

Herbicide Action Course, Purdue University, West Lafeyette, IN. **Oct. 31-Nov. 5 and Nov. 7-12.** Contact G.F. Warren 1130 Cherry Lane, West Lafayette, IN. 47906, 317/463-1130.

Atlantic Seedsmen Association Annual Convention, Fort Magruder Inn, Williamsburg, VA, **Nov. 3-5.** Contact Margaret Herbst, 230 Park Avenue, New York, NY 10017, 212/685-5917.

California Landscape Contractors Association Annual Convention, Hawaii, **Nov. 10-14.** Contact CLCA, 916/448-CLCA

NY State Turfgrass Association Conference and Trade Show, Rochester, NY, **Nov. 9-11.** Contact Ann Reilly, 210 Cartwright Boulevard, Massapequa Park, NY 11762, 516/541-6902.

21st Nebraska Turfgrass Conference and Trade Show, Holiday Inn, Omaha, NB **Jan. 11-13.** Robert Shearman, 377 Plant Science Complex, University of Nebraska, Lincoln, NB 68583, 402/472-2550.

Golf Course Superintendents Association of America 54th International Turfgrass Show, Georgia World Congress Center, Atlanta, GA, **Feb. 22-24.** Contact Kay Nelson, 1617 St. Andrews Drive, Lawrence, KS 66044, 913/841-2240.

American Society of Landscape Architects Annual Meeting, Hilton Hawaiian Village, Honolulu, HI, **Nov. 20-23.** Contact Ed Able, ASLA, 1733 Connecticut Avenue, NW, Washington, DC 20009, 202/466-7730.

8th Annual Professional Landscape Management School, Indiana State University, Evansville, **Nov. 16-17.** Contact Allen Boger, Room 202, City-County Building, Evansville, IN 47708, 812/426-5287.

Professional Lawn Care Association of America's 3rd Annual Convention and Trade Show, Indiana Convention Exposition Center, **Nov. 16-18.** Contact Jane Stecker, 435 North Michigan Ave., Suite 1717, Chicago, IL 60611 312/644-0828.

Professional Grounds Management Society National Conference, Vacation Village Hotel, San Diego, CA, **Nov. 16-18.** Contact Michael Silberhorn, 7 Church Lane, Pikesville, MD 21208 301/653-2742.

21st Annual North Carolina Turfgrass Conference, Pinehurst Hotel, Southern Pines, NC, **Jan. 4-6.** Contact L.T. Lucas, 3409 Gardner Hall, N.C. State University, Raleigh, NC 27650, 919/737-2751.

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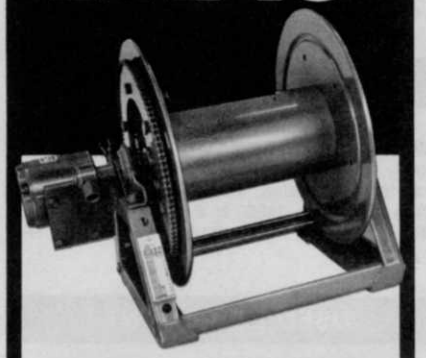

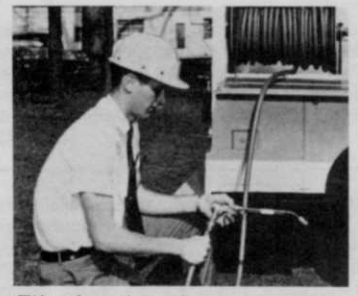

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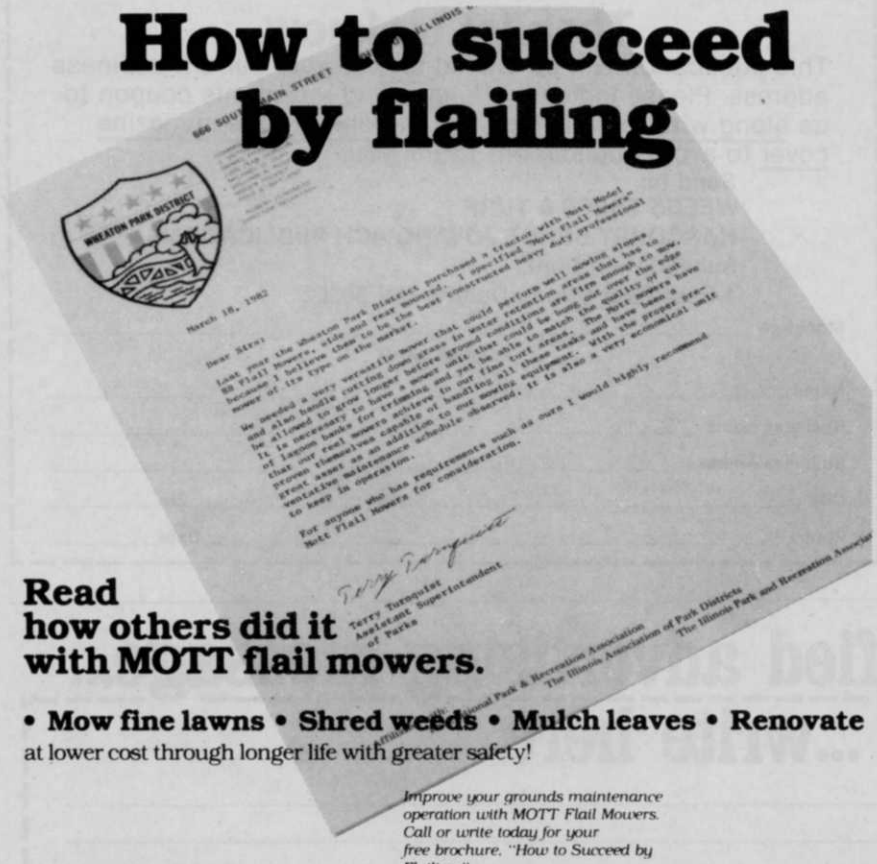

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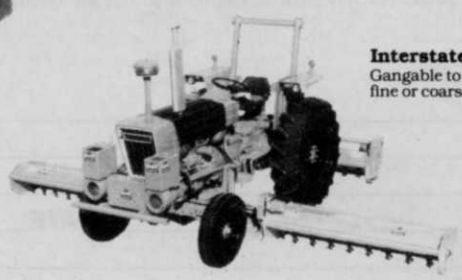

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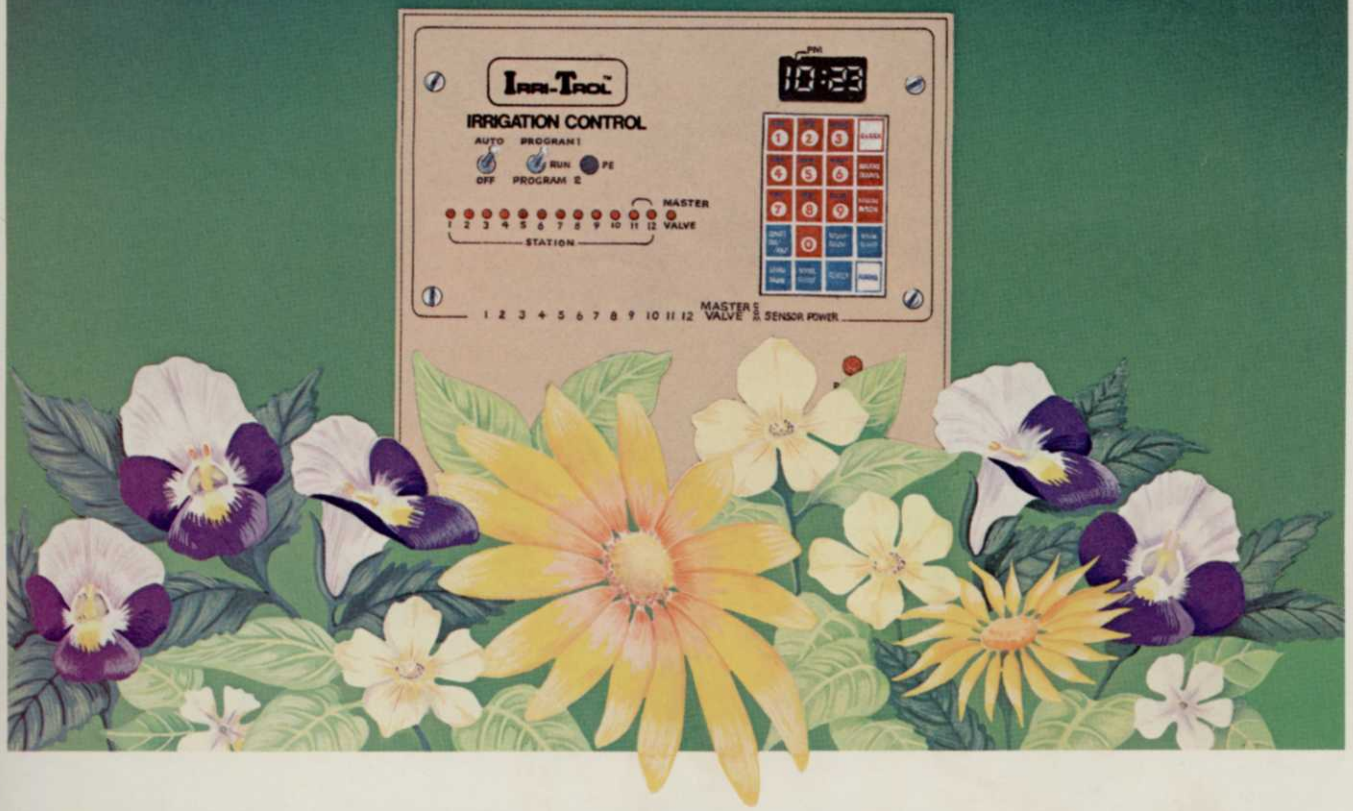

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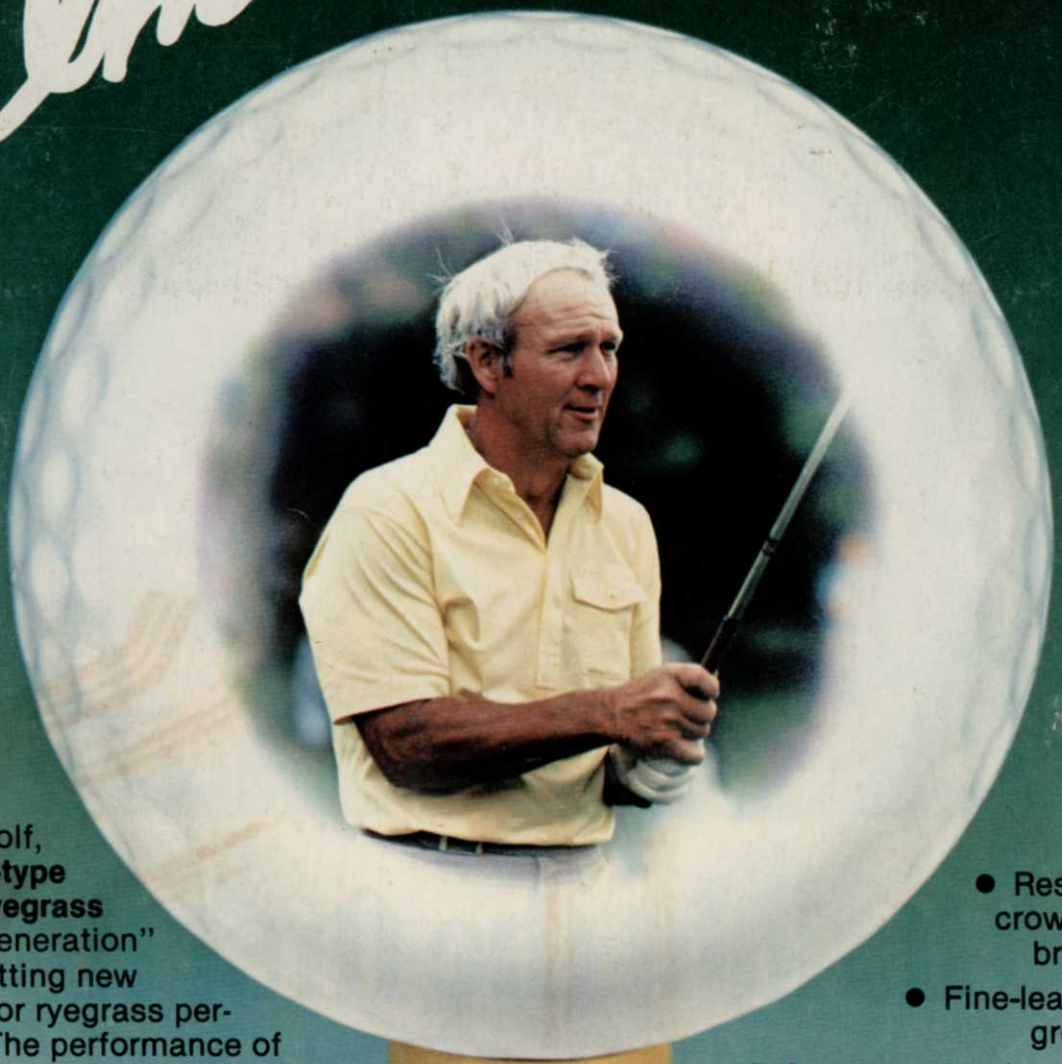

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